CMHC
Canada Mortgage
and Housing Corporation

SCHL
Société canadienne
d'hypothèques et de logement

THE ECONOMICS OF SHELTER ALLOWANCES

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September 1982

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PREFATORY NOTE

The project described in this report was commissioned by the Canada Mortgage and Housing Corporation and was carried out over a period of about three months, from June to September 1982. An overriding consideration in the design of the project was that it had to be completed within that length of time. We hope that what we have been able to do will provide helpful insights into the types of economic effects that might ensue from the introduction of a rental shelter allowance program for Canadian households. However, we emphasize that our aim has necessarily been far less ambitious than that of providing the kind of detailed and comprehensive treatment of the subject that would be feasible in a project of substantially longer duration. We ask the reader to keep this in mind as he reads the report.

The financial support provided by CMHC made the project possible. Eric Tsang of CMHC provided helpful suggestions and guidance when the project was first conceived and subsequently during its execution. Christine Feaver contributed valuable computer programming assistance. Marion Steele of the University of Guelph kindly provided us with a draft copy of her excellent study of housing allowances for the Ontario Economic Council. Edgar Olsen, of the University of Virginia, now visiting at the University of Wisconsin, provided information and unpublished material based on his extensive involvement in and knowledge of the analysis of experimental U.S. housing allowance data. We thank CMHC and all of the foregoing individuals but hasten to add that we alone are responsible for the content of this report and for the views expressed herein.

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1. INTRODUCTION

The purpose of our study is to provide some insights into the question of how a large-scale program of shelter allowances for renter households might influence the behaviour of those households affected directly, of other households, and of the housing market as a whole. To this end, we construct an analytical framework based on consumer theory and the relevant theory of market behaviour. We then design a model within this framework and use the model to explore, by simulation, the likely range of effects of alternative shelter allowance schemes. The model is not an econometric model: it is not estimated from real data and does not purport to represent in realistic detail the Canadian housing market or the particular market for housing within any area of Canada. It is a purely theoretical model. However, inasmuch as it has the broad features of any real housing market it represents a useful tool of analysis, and one that can be employed to test the sensitivity of results to different schemes and different assumptions about household and market response patterns. We make extensive use of the model for purposes of this report.

Depending on the formula used, a shelter allowance program may alter the relative price of housing for the program target group, the group's level of income, or both. It will thereby induce directly a change in the demand for housing and, concomitantly, a change in the demand for non-housing goods. It will also induce a response on the supply side of the housing market, through the normal interplay of demand, supply, and price adjustments. However, this response will not be instantaneous: in the long run, the supply of housing may be quite flexible and responsive to price incentives; in the short-run, however, it may be quite inflexible, with consequent short-run

implications for rents. If rental prices rise, some of the increase will show up as "excess profit" components of landlords' incomes. A fraction of the excess profits will then find its way into the public treasury through the normal income tax channel, and this will help to defray the cost of the shelter allowance program. However, the balance of the cost must be met in other ways, possibly by a reduction of other forms of public expenditure, and possibly by an increase in taxes of one kind or another. There will be consequent further effects on the housing and non-housing markets as a result of these tax or expenditure adjustments. (The same is true if the costs are met by deficit financing.)

The extent to which a shelter allowance program will affect the markets for housing and other goods depends, of course, on the size of the benefits available to the target group, and on the size of the target group itself. A low level of benefit payable only to a highly restricted group of households will obviously have only minor market effects. On the other hand, a high level of benefit payable to a large fraction of households will have correspondingly large effects. If the benefit scheme is restricted to renters, but sufficiently liberal, it may draw in not only a large number of households that were renters initially, but also a substantial number of owner households that are induced to become renters in response to the new incentive. As the level of participation in the program thereby increases, the market effects are enhanced, and so too the cost of operating the program and the associated government budgetary adjustments that are required.

In light of the foregoing, it is apparent that a proper understanding of the effects of a shelter allowance program requires that they be studied within a general equilibrium framework that allows for dynamic adjustment

patterns as well as long-run or steady-state relationships. That is how we have modelled them and how we analyse and discuss them throughout this report. The extensive use of a general-equilibrium approach to the analysis of shelter allowance effects may be regarded as one of the report's major features.

The structure of the report is as follows. In section 2 we discuss alternative shelter allowance formulas and their implications for individual household behaviour, based on microtheoretic considerations. We go on, in section 3, to describe the broad features of a comprehensive model of the housing market which includes a shelter allowance program, as well as linkages with the public treasury and the market for non-housing goods. A detailed description of the model is then provided: the model is described in detail in its short-run or dynamic form in section 4, and in its long-run or stationary form in section 5. A discussion of the model for simulation purposes is provided in section 6, including discussion of the computer program in which the model is embodied and of the initial choice of values for the model's parameters. A series of simulation experiments with the model is defined in section 7. Section 8 describes the format and symbols used in reporting results and the results themselves are analysed and interpreted in sections 9-11. Some discussion of issues not readily treated in the context of the model is provided in section 12. The report concludes in section 13 with a comprehensive summary of findings that are of relevance for policy purposes.

2. ALTERNATIVE SHELTER ALLOWANCE FORMULAS

The shelter allowance formulas that are of interest for our purposes constitute a linear class defined by

$$S = a(R-b\bar{Y}) + K = aR-ab\bar{Y} + K$$

S stands for the shelter allowance payable to a particular household, R for the household's expenditure on rent, and $\bar{Y}$ for its income, as defined in some appropriate way. (The exact definition of income for purposes of a shelter allowance program is an issue of some importance, it may be noted. However, for present purposes we may simply assume that an appropriate definition has been applied.) The parameters of the formula are a, b, and K. The parameter a represents the proportion of rent that is recoverable by the household, K represents a lump-sum cash transfer, and the product ab may be interpreted as a rate of "tax-back" on income. The class of formulas thus implies three distinct effects from the point of view of a household: a price reduction (since in effect the household has to pay only the fraction (1-a) of the nominal rental price), an income increase (represented by the transfer K), and an increase in the effective rate of income tax (represented by ab).[1] These separate effects may induce quite different responses on the part of the household, and the choice of parameter values is therefore a matter of great importance in choosing a formula to meet the particular objectives of a shelter allowance program.

A shelter allowance formula would probably involve a number of additional restrictions as well. For one thing, only nonnegative values of S would be admissible. For another, the parameters a, b, and K might be allowed to vary with household composition (in particular, numbers of dependents), with local market circumstances, and perhaps with other special characteristics of the household's situation.

There are three broad subclasses of allowance formulas that are of particular interest. We shall refer to these as Gap, Rent Proportion, and

Cash Transfer formulas. They are defined as follows:

Gap Formulas: $K=0$; hence $S=a(R-b\bar{Y})$

In this formula the household receives some fraction (a) of the gap between its actual rent and some stipulated proportion (b) of its income. S is defined as zero if the gap is negative, and there may be other restrictions as well.

Rent Proportion Formulas: $b=K=0$; hence $S=aR$

Here the household simply receives a specific proportion (a) of its rent. A ceiling may be imposed on the amount of rent that a household may claim for allowance purposes.

Cash Transfer Formulas: $a=b=0$; hence $S=K$

This formula represents a straight transfer payment to the household. There is now no restriction on how the transfer can be used, although only households meeting certain requirements may be eligible. If there is an income requirement, the size of the transfer might be reduced if income exceeds a certain level (say $\bar{Y}^*$) and the class of formulas might be redefined as $S = K$ if $\bar{Y} < \bar{Y}^*$, $S = K - ab\bar{Y}$ if $\bar{Y}^* \leq \bar{Y} < K/ab$, and $S = 0$ if $\bar{Y} \geq Y^*$. Even if cash transfer formulas are considered unlikely policy choices they are of interest from the point of view of analysing the effects of other formulas because they allow a household free choice of its consumption allocation, and this provides a useful standard with which to compare the consumption allocations under other formulas.

3. GENERAL FEATURES OF THE MODEL

We describe the general features of our model of shelter allowance effects in this section, postponing until succeeding sections a discussion of

its details. The model is a monthly model (i.e., the unit of time is a month). As noted previously, it is theoretical and basically simple in structure. We assume five categories of households. Households in categories 1, 2, and 3 are renters; households in categories 4 and 5 are owners. Households in category 1 participate in the shelter allowance program; other households do not participate, either by choice or because of ineligibility. Prior to the introduction of the program, all households are necessarily in categories 2, 3, 4, or 5. Categories 2 and 4 are "low income" classes (relatively speaking) of renters and owners, respectively, while categories 3 and 5 are "high income" classes. When the program is introduced, it is assumed that only "low income" renter households are eligible. "High income" renter households are excluded either because of income restrictions built into the shelter allowance formula or because their rents fall below the floor level (as a fraction of income) required for eligibility. All owner households are excluded. However, some "low income" owner households may be induced to become renters so that they can participate in the program, and we allow for this possibility. A household that is already a "low income" renter need only fill out an application form to participate, whereas a "low income" owner household must take two steps -- change its tenure status and fill out an application form. Even though a "low income" renter household need only fill out a form, experience with actual shelter allowance or similar programs indicates that a substantial fraction may not participate, either because of ignorance or because of a perceived stigma associated with participation. Because of the need to change tenure, a far larger fraction -- probably the majority -- of "low income" owner households will fail to participate.

The situation just described can be represented as in the following table. Rows of the table stand for categories of households before the program

is introduced and columns for the same categories after the program is introduced. The initial numbers of households in the categories are denoted by $\bar{N}_1(=0)$, $\bar{N}_2$, $\bar{N}_3$, $\bar{N}_4$, and $\bar{N}_5$, and the total of all households by $\bar{N}$. The numbers of households after the program is introduced are denoted by N_1, N_2, N_3, N_4, and N_5. Diagonal elements of the table represent households that have not changed category; off-diagonal elements represent intercategory flows. The population of households is closed so that overall totals are the same both before and after introduction of the program (equal to $\bar{N}$).

Category before program is introduced	Category after program is introduced: 1	2	3	4	5	Total households
1	0	0	0	0	0	0
2	$\pi\bar{N}_2$	$(1-\pi)\bar{N}_2$	0	0	0	$\bar{N}_2$
3	0	0	$\bar{N}_3$	0	0	$\bar{N}_3$
4	$\theta\bar{N}_4$	0	0	$(1-\theta)\bar{N}_4$	0	$\bar{N}_4$
5	0	0	0	0	$\bar{N}_5$	$\bar{N}_5$
Total households	N_1	N_2	N_3	N_4	N_5	$\bar{N}$

The parameters π and θ, may be interpreted as program participation rates: π is the rate for "low income" renter households and θ is the rate for "low income" owner households. (Both parameters must lie in the interval (0,1), of course.) A zero in the table indicates an absence of any flow induced by the program. In practice, we expect π and θ to vary with the length of time since the program has been introduced and with the attractiveness of the program, as represented by the size of allowance available to participants. Both of these influences are allowed for in the model.

The model includes an individual household housing demand function and an overall housing demand function defined by aggregation. Each household's demand for housing services is assumed to be a function of its after-tax income and the price it must pay. Depending on the particular formula, both the (effective) income and the (effective) price may be altered by participation in the shelter allowance program. Referring to the parameters of the general class of formulas defined in the previous section, the effective demand price facing a program participant is a fraction (1-a) of the nominal or supply price, and if a is greater than zero and the household's price elasticity of demand for housing is negative, a higher level of consumption will be induced by the program. If K is positive, this is equivalent to an increase in income, which tends to raise the level of demand for housing services. On the other hand, if a and b are both positive, there is an additional effect similar to an increase in income tax, and a consequent reduction of disposable income, and hence of housing demand. The net effect of a particular shelter allowance formula thus depends on the interaction of the three parameters within the household's demand function, and within the larger system represented by the complete model. The net effect on aggregate housing demand depends also, of course, on the proportion of households participating, which in turn depends on the proportion eligible and the participation rates discussed above. Any shift in the demand for housing has implications for nonhousing demand as well, inasmuch as households are subject to overall budget restrictions.

The model contains a single aggregate supply function for housing. For most purposes, it is assumed that the supply of housing responds to price changes, and that the long-run supply curve is horizontal.[2] This implies that departures of the supply price from its long-run equilibrium level diminish

with time, and eventually vanish. However, the rate of approach to the long-run level may be faster or slower, depending on the short-run supply price elasticity and on other adjustment parameters in the model. In the very short run, the supply curve may be virtually vertical, so that almost all shifts in demand will result in supply price increases. In this case, "excess profits" will be generated by the system, as extra returns to landlords. Again, these profits will be temporary, although they may persist for a long time.

A different situation obtains if the supply side of the housing market is completely unresponsive to price incentives. If the price elasticity of supply is zero, any demand-induced price increase will persist indefinitely, and with it the associated "excess profits."

Any "excess profits" generated in the system are assumed to be subject to normal income tax, and thus some fraction of them will find their way into the federal treasury, and act as a partial offset to the cost of the shelter allowance program, at least while the profits last. The balance of the cost must be paid for by other means. The possibilities are tax increases, reductions of other expenditure programs, or deficit financing. For purposes of our model, we have assumed that the cost would be met out of a special tax on incomes. (If one prefers the alternative of a reduction of other programs, one can think of the tax as representing a reduction of transfer payments, rather than as a tax per se; the result is the same.) The incidence of this tax itself has an effect on housing and nonhousing demand, and its effects are allowed for in the model. No deficits are assumed in the model as a result of the shelter allowance program: the budget is always balanced and tax rates are set accordingly, so as to bring this about.

The model treats "housing services" as a single homogeneous commodity. Dwelling units, as such, are not identified separately. This avoids a number of complications in the specification and application of the model. A large house is thought of simply as a larger quantity of services than a small house. In a more detailed and more realistic model one would probably wish to distinguish housing units from housing services, but the homogeneity assumption is adequate for present purposes, and a considerable convenience.

There is assumed to be a single supply price for housing services, whether or not the services are from a rented unit or an owner occupied unit. This price is equated to the rental price. The most convenient way of thinking about the matter is to regard all households as "renting" from someone. Those that actually own their own homes are regarded as paying "rent" to themselves, while those that rent in the usual sense of the word make their payments to others. (This concept applies only to the interpretation of the housing price; for purposes of shelter allowance eligibility the usual tenure distinction is maintained.)

It is of interest to consider the effects of a shelter allowance program under alternative assumptions about the degree of "tightness" of the housing market. Aside from considerations of the "national" market, different local markets may experience different degrees of "tightness" or "looseness." Within the model context, "tightness" may be defined in terms of two parameters, the vacancy rate and the price elasticity of supply. As noted, if the price elasticity is zero, the supply is absolutely fixed, and any increase in demand can only raise the housing price level. This might be regarded as a limiting case of market tightness. If the elasticity is not

zero, but very small (and positive), the demand increase will induce a high degree of tightness in the short (and not-so-short) run, but eventually the market will return to "normal." In the meantime, there will be downward pressure on the vacancy rate as the available stock of housing is used more intensively, and this too may be taken as evidence of the tight market situation.

In working with the model we are interested both in the "ultimate" or "long-run" situations that emerge as a result of the introduction of a shelter allowance program and in the "short-run" effects. We have therefore incorporated into the model response mechanisms which can be controlled for experimental purposes in order to determine the consequences of slower or faster rates of adjustment. These mechanisms relate in particular to the vacancy rate and the program participation rates, as well as the price elasticity of supply.

There are two prices in the model, the price of housing services and the price of all other goods combined. These prices may be thought of as "real" or net of any general inflationary effects. If there is general inflation, one may think of the price variables in the model as having been deflated by an appropriate index.

4. THE MODEL IN DYNAMIC FORM

The model is defined in detail in an accompanying listing of equations and definitions. Two forms of the model are shown, a dynamic (or short-run) form and a stationary (or long-run) form. We discuss the dynamic form of the model in this section and the stationary form in the next one. The model is a monthly one, and the variables bear a time subscript (t) to indicate the particular month.

Demand for Housing Services

Individual household demand for housing services (h) is determined in equation (1). Demand is a function of income (Y), the demand price of housing services (P_h^d), and the (combined) price of other goods ($\bar{P}_g$). Income, which is lagged one month, is deflated by $\bar{P}_g$, and hence is expressed in terms of its "other goods" purchasing power. It is net of all income tax, including the general income tax, the special tax imposed to pay for the shelter allowance program, and any tax-back effect associated with the shelter allowance formula. (The definition is made explicit in equations (14) and (15), as discussed below.) The parameters α_1 and α_2 represent the income and price elasticities of demand for housing services, respectively, with $\alpha_1 \geq 0$ and $\alpha_2 \leq 0$. The form of the equation implies that demand is homogeneous of degree zero in income and the two prices.

The parameters of the individual demand equation are the same for each of the five categories of households, although the income and housing demand prices may differ. Aggregate demand for housing services (H^d) is determined as the weighted sum of household demands, the weights being the numbers of households (N) in the five categories.

Demand for Other Goods

With income given and the demand for housing services determined, the demand for other goods by each household is derived residually, in equation (3). (It may be assumed either that there is no household saving in the model, or that saving is subsumed under the heading of "other goods.") The total demand for other goods is then obtained by aggregation over the five household categories, in equation (4). The price of other goods is taken as fixed, in the model, as indicated by the bar in the symbol $\bar{P}_g$.

Supply of Housing Services

The supply of housing services (H^S) is determined in the aggregate in equation (5). The movement from last month's level to this month's level is a function of the supply price (P_h^S) in relation to the long-run equilibrium price ($\bar{P}_h^S$). In addition, allowance is made for unsold supply by adjusting the prices by the occupancy rate ($1-\hat{\rho}$ or $1-\bar{\rho}$, where ρ and $\bar{\rho}$ are the actual and long-run equilibrium vacancy rates).

The parameter β is the short-run (one-month) elasticity of supply with respect to price. In general, β is assumed to be positive, and the structure of the model is such that the supply price converges to its long-run level with the passage of time. The long-run supply curve is therefore horizontal, as previously noted. In the special case of a perfectly inelastic supply, β is set to zero, and thus price convergence does not occur. The supply curve is then a vertical straight line. If β is positive but very small, the supply curve is nearly vertical in the very short run (a period of one month), but gradually rotates, as time passes, until it reaches a horizontal position. β is therefore a critical parameter in determining the degree of "tightness" in the housing market, and hence the degree of responsiveness of supply to demand pressure induced by a shelter allowance program, as discussed in the previous section.

Housing Market Balance Equation

Equation (6) is an identity expressing the necessary relationship between aggregate supply, aggregate demand, and the vacancy rate.

Vacancy Rates

The actual vacancy rate (ρ) is determined in equation (7) as a function of last month's actual rate and "conditional equilibrium" rate ($\hat{\rho}$).[3]

A simple partial adjustment mechanism is assumed, the parameter γ (between 0 and 1) determining the speed at which ρ approaches $\hat{\rho}$. The conditional equilibrium vacancy rate is determined in equation (8) as a function of the supply price of housing, expressed as a ratio to the (constant) price of other goods. The form of the function used in (8) is such that only positive values of $\hat{\rho}$ can occur. (Given this, and any positive starting value of ρ, all future values of ρ are necessarily positive too.) The basic idea underlying equation (8) is that a rise in the price of housing services will raise the implicit cost of having services unsold, and thereby induce downward pressure on the vacancy rate. (δ_1 is negative.) Given enough time, though, the supply price will move to its long-run equilibrium level, and therefore the vacancy rate to its corresponding long-run or "natural" level ($\bar{\rho}$), as indicated in equation (9).

The vacancy rate represents another dimension of housing market "tightness." An increase in demand causes the supply price to rise, and this, in turn, causes the vacancy rate to fall, at least temporarily.

The definition of the vacancy rate deserves comment. Standard usage defines the vacancy rate as the proportion of units unoccupied (apartments, single family dwellings, or whatever). In this model, however, units are not identified separately and the vacancy rate is to be regarded as the proportion of the total stock of housing (from whence flow all housing services) that is unused in a given period. The two concepts are equivalent if the vacancy rate in the usual sense is the same for all classes of dwelling units.

Shelter Allowance Formula

The shelter allowance paid to an individual household (S) is defined by equation (10). The formula is the general one discussed in section (2), although there are two differences in notation. First, the relevant rent is

that paid by members of category 1 (the participating category), and is therefore represented by the symbol R_1. Second, the income variable is defined as the base level of disposable household income for members of category 1 ($\bar{Y}_1$) plus after-tax excess profits received by this group (X_1'). (In actual use of the model we have assumed that members of category 1 do not receive any excess profits, so that X_1' is zero; however, this requires an explicit assumption which there is no need to introduce at this stage.) The general formula can be converted to one of the specific forms (gap, rent proportion, or cash transfer) by setting one or more of the parameters (a,b,K) to zero. In practice there might be other restrictions (income, maximum eligible rent, etc.) but we have not written these into the model. Also, the parameters might well vary with household composition (number of dependents) or with other household characteristics (e.g., age), but these too are ignored within the model.

Prices and Rents

The demand price for housing services (P_d^h) is the same as the supply price (P_h^s) in all categories but the first one. In that category, however, a difference between demand and supply price is introduced as a result of the shelter allowance program, and the difference may be important in determining the program's effects. A household in category 1 need pay only the fraction (1-a) of the actual price, the remaining fraction (a) being paid in the form of a shelter allowance. Its effective (or demand) price is therefore reduced, as long as a is not zero (i.e., as long as the formula is not of the simple cash transfer type), and this will tend to induce an increase in its demand for housing services. The relationship between demand and supply price is defined in equation (11) for category 1 and in equation (12) for the other four categories. Actual rent paid by a

household, regardless of category, is the product of supply price and quantity demanded, as in equation (13). (A participating household may be assumed to pay the full supply price to the landlord, and then to be reimbursed under the terms of the program. However, this should make no difference to the household's behaviour: its demand price would still be the fraction (1-a) of the supply price, regardless of the administrative arrangements for providing compensation. The convenient assumption that owners are "renters" in the sense that they pay rent to themselves should be kept in mind also; R_3 and R_5 are thought of as "rental" payments in this sense.)

Incomes

Household incomes are determined in equations (14) - (18). The effective income of a household in category 1 (Y_1) is determined in equation (14), and is obtained as the sum of the household's base disposable income ($\bar{Y}_1$) and its share of after-tax excess profits (X_1'), reduced by the rate of tax levied to pay for the shelter allowance program (τ_1) and the formula tax-back rate (ab), and augmented by the formula cash transfer component (K). (In practice, both X_1' and τ_1 are taken to be zero.) To repeat, this is the household's effective income; to the extent that it is influenced by the formula parameters a, b, and K, the formula will induce a change in income. This is in addition to any change in demand price associated with the parameter a. The overall effect on housing demand will be the net effect of these two changes.

The income of households in categories 2-5 is determined in equation (15) in a similar fashion, except that since they do not participate in the program they do not receive the formula cash transfer and are not subject to the formula tax-back rate.

Total excess profits (X) generated by the (possibly temporary) increase in supply price are determined in equation (16).[4] From the landlord's point of view, the effective price is the product of the rental price (P_h^s) and the occupancy rate ($1-\rho$). The difference between the actual effective price at time t and the long-run ("normal") effective price is thus $[P_{ht}^s(1-\rho_t) - \bar{P}_h^s(1-\bar{\rho})]$. This difference is then multiplied by the supply of housing services in the (true) rental categories 1, 2, and 3, this supply being equal to the sum over these categories of numbers of households multiplied by housing demand per household and divided by the occupancy rate.

It can be argued that excess profits accrue also in the case of the owner occupied dwellings of categories 4 and 5. Even though such profits are not represented by actual payment flows, they would be capitalized in the value of the homes owned, and hence would increase the wealth of the owners. However, we have ignored any effects of this kind. Such profits would not be taxable under existing Canadian law, either as income or as capital gains, and would not therefore provide any revenue to offset the program cost, as would the excess profits from increases in true rental prices. To allow for the wealth effects would add an unnecessary complication to the model.

The excess profits (on true rental transactions) are subjected to normal income tax at a rate $\bar{\tau}_0$, in equation (17). Aggregate after-tax excess profits (X_t') are then allocated among the five categories in accordance with a fixed set of distribution parameters (η_i, i=1,2,3,4,5) and the amount received per household in each category is then calculated in equation (18). (As indicated above, only "true" landlords are assumed to receive excess profits. In principal, a landlord -- the owner of a dwelling in which someone else lives -- could belong to any category. In practice, though, we assume

that landlords belong only to the higher income categories 3 and 5, so that η_1, η_2, and η_4 are all zero.)

Tenure and Shelter Allowance Program Participation

The rates of participation of eligible renter households and eligible owner households (which become renters) are determined in equations (19) and (20). The proportion (π) of households in category 2 that transfer to category 1 after the shelter allowance program has been introduced is treated as a function of the desired proportion (desired by the potential participants, that is) and of the proportion in the preceding month. A partial adjustment mechanism is assumed, with speed-of-adjustment parameter ξ ($0<\xi\leq 1$). The proportion (θ) of households in category 4 that transfer to category 1 is derived in a similar fashion, the adjustment parameter in this case being ϕ. The numbers of households in the various categories in any given month (N) are then calculated by applying the π and θ proportions to the initial population ($\bar{N}$), as indicated in equations (21) - (25), and as discussed in section 3.

The desired levels of π and θ (symbolized by $\hat{\pi}$ and $\hat{\theta}$) are determined in equations (26) and (27). It is assumed that there are base levels of participation, represented by σ_0 and ε_0, but that participation will be higher or lower, depending on whether the ratio of allowance to income (S/Y_2 or S/Y_4) exceeds or falls short of some given level (represented by σ_2 in equation (26) and by ε_2 in equation (27). The functional form in the two equations is such that $\hat{\pi}$ and $\hat{\theta}$ can never exceed 1 as long as the right side of the equation is not allowed to be negative (a restriction not shown in the model listing but imposed in practice when the model is used for simulation).

Government Budget

Every household in category 1 is assumed to have the same income and tastes, hence to demand the same volume of housing services and pay the same amount of rent, and hence to receive the same shelter allowance. The total cost of operating the program (C) is then equal to the product N_1S, as in equation (28). (Administrative costs are ignored.) Under the balanced budget assumption, the total of taxes required (T) is equated to the total cost in equation (29). The tax total consists of two components, one representing the automatic levy on excess profits and the other the special levy necessary to make up the balance. This is indicated in equation (30) and the special tax rates themselves (τ) are calculated in equation (31) by adjusting some set of base tax rates ($\bar{\tau}$) up or down proportionately, as required. (The $\bar{\tau}$ rates may be thought of as the long-run or equilibrium rates necessary to finance the program, although for purposes of actual calculations only their relative magnitudes from category to category are important since their levels can be adjusted up or down in any event, based on equation (31).)

Initial Population of Households

Equation (32), the final one, determines the pre-program population of households in each of the (non-empty) categories 2, 3, 4, and 5. For convenience, it is simply assumed that the initial population ($\bar{N}$) is distributed according to a set of positive parameters λ_i (i=2,3,4,5), such that $\Sigma\lambda_i = 1$.

5. THE MODEL IN STATIONARY FORM

The stationary form of the model differs from the dynamic form in that (as long as β is positive) the supply price is equal to its long-run equilibrium level, the supply of housing services is entirely determined

by demand, the vacancy rate is at its "natural" or long-run equilibrium level, the program participation rates are equal to the desired rates, and there are no excess profits. The equations of the stationary form are provided in a separate listing. They bear the same numbers as the corresponding equations of the dynamic form, except that a prime is added for identification (thus equation (1)′, (2)′, etc.) Also, there are gaps in the sequence of numbers since some of the dynamic equations have no stationary counterparts. The time subscripts on the variables are irrelevant in the stationary form and are dropped.

Demand for Housing Services

Equations (1)′ and (2)′, the individual and aggregate demand equations for housing services, are identical to the corresponding equations of the dynamic model.

Demand for Other Goods

Equations (3)′ and (4)′, the individual and aggregate demand equations for other goods, are also identical to their counterparts in the dynamic model.

Housing Market Equilibrium Condition

Equation (6)′ corresponds to the housing market balance equation of the dynamic model but differs in that ρ is replaced by $\bar{\rho}$. The equation may now be interpreted as a long-run equilibrium condition. There is no longer a separate equation for the supply of housing services and one may think of the supply as being determined by the equilibrium condition, once the demand for housing services has been determined. Note also that the equations that determine vacancy rates are no longer needed since the vacancy rate is now fixed at its long-run level and may be regarded as a parameter.

Shelter Allowance Formula

Equation (10)′ corresponds to the shelter allowance formula equation of the dynamic model, except that the excess profits variable has been eliminated (since it is necessarily zero).

Prices and Rents

Equations (11)′, (12)′, and (13)′ correspond exactly to their dynamic counterparts.

Incomes

Equations (14)′ and (15)′ differ from their dynamic counterparts in that the excess profits variables no longer appear. Since there are no excess profits, there are no equations corresponding to (16), (17), and (18).

Tenure and Shelter Allowance Program Participation

The participation rates are at their long-run desired levels and the adjustment equations (19), and (20) thus disappear. Equations (21)′ - (25)′ are the same as their dynamic counterparts, except that π and θ are replaced by $\hat{\pi}$ and $\hat{\theta}$. Equations (26) and (27) are unchanged (except for the omission of time subscripts).

Government Budget

Equations (28)′ and (29)′ are unchanged. Equations (30)′ and (31)′ differ from (30) and (31) in that there are no excess profits and the special tax rates must therefore be set at levels that will cover the entire cost of the program.

Initial Population of Households

Equation (32)′ which determines what the population would be in each of categories 2, 3, 4, and 5 in the absence of a shelter allowance program, is unchanged.

A Further Comment

The model just described applies as long as β, the price elasticity of supply of housing services, is positive. If β is zero, the stationary model is quite different. In that case the housing supply is fixed and changes in the supply price and vacancy rate do not vanish in the long run. Excess profits may also persist. To find a stationary solution in those experiments in which β is assumed to be zero we use the dynamic model, simulating with it over a sufficiently long period for it to converge to a stationary state.

6. SIMULATING WITH THE MODEL

The model has been embodied in a computer program written specially for the purpose and labelled SHELTER. To simulate with SHELTER, the user supplies values for all parameters of the model. It is assumed that at the beginning there is no shelter allowance program in operation and that the system is in a stationary state. A subroutine named STAT is called and the initial state is determined, based on the stationary form of the model. The shelter allowance program is then assumed to commence and values of the a, b, and K parameters are supplied by the user, thus defining the allowance formula for purposes of the experiment. A subroutine called DYNAMO is then called to move the model forward in time, month by month, for as many months as the user has specified, based on the dynamic form of the model. Finally, STAT is called again to determine the ultimate stationary state of the system when the shelter allowance program is operative. Values of selected variables of interest are printed out for the initial and final stationary states and for designated points in time (months) in between.

The foregoing procedure applies when β has a positive value. As noted previously, the determination of the final state is different when β is equal to zero, and the use of SHELTER is modified accordingly. In that case, the final state is determined, not by calling the STAT subroutine, but by letting DYNAMO run for as many months as necessary in order for the system to converge to a stationary state.

Our strategy in simulating with SHELTER is to do an initial run with some specified allowance formula and a set of parameter values referred to as the standard set. Additional runs are then done with one or a few of the parameters changed, all others retaining their standard values. This keeps the number of experiments within manageable bounds. (Even so, the number reported is still quite large.)

In choosing standard values for the parameters we have been guided by available estimates in the literature of housing market analysis, relevant Canadian data, and a desire to keep the model and its use as simple as possible.[5] Since the model is independent of units of measurement, we choose convenient ones. In particular, we set the long-run level of the housing supply price and the price of non-housing goods at unity. We also set the total population at unity. (One could think of the population as being 1 million and the prices as being in index form with bases equal to 1.) We assume that every household in the "low" income categories (1, 2, and 4) has base disposable income ($\bar{Y}$) of 1 unit, and every household in the "high" income categories (3 and 5) has base disposable income of 2 units. We assume that 60 percent of all households own their homes and that 40 percent are renters. Two-thirds of the renter households are in the "low" income class while for owners the proportion is one-ninth. The "natural" or long-run vacancy rate ($\bar{\rho}$) is set at 3 percent. Excess rental profits are assumed to

accrue only to the "high" income classes, and in proportion to the numbers of households in these classes. The shelter allowance program participation rates are assumed to be insensitive to the level of benefits ($\sigma_1=\varepsilon_1=0$) in the standard case and $\hat{\pi}$ and $\hat{\theta}$ are set at 70 percent and 10 percent, respectively. (σ_0 and ε_0 are chosen so as to yield these values.) The income elasticity of demand for housing services is set at .75, the price elasticity of demand at -.5, and the short-run (monthly) price elasticity of supply at .01.[6] The general (marginal) rate of tax on excess profits is assumed to be 40 percent. The special tax to pay for the shelter allowance program is assumed to be paid only by households in the "high income categories 3 and 5, and the rates are identical for these two categories. (As noted, in discussion of the model, the actual levels of the special tax rates do not matter since these are determined within the model; only the relative magnitudes among categories matter for purposes of parameter specification.) The speed-of-adjustment parameters (γ,ξ,ϕ) are all set at .1 in the standard case, implying that 10 percent of the gaps between actual and desired levels are closed each month.

The foregoing represents the more important aspects of the standard parameter specification, aside from the parameters of the shelter allowance formula (a,b,K), which are discussed in the next section. The full set of standard parameter values is listed as follows, for convenience:

Standard parameter values[7]

$\alpha_0 = .42$	$\alpha_1 = .75$	$\alpha_2 = -.5$
$\beta = .01$	$\bar{\rho} = .03$	$\delta_1 = -3$
$\gamma = .1$	$\xi = .1$	$\phi = .1$
$\hat{\pi} = .7$	$\hat{\theta} = .1$	$\sigma_1 = 0$

$\sigma_2 = .09$ $\quad \varepsilon_1 = 0$ $\quad \varepsilon_2 = .09$

$\bar{P}_h^s = 1$ $\quad \bar{P}_g = 1$ $\quad \bar{Y}_1 = 1$

$\bar{Y}_2 = 1$ $\quad \bar{Y}_3 = 2$ $\quad \bar{Y}_4 = 1$

$\bar{Y}_5 = 2$ $\quad \eta_1 = 0$ $\quad \eta_2 = 0$

$\eta_3 = .2$ $\quad \eta_4 = 0$ $\quad \eta_5 = .8$

$\bar{N} = 1$ $\quad \lambda_1 = 0$ $\quad \lambda_2 = .267$

$\lambda_3 = .133$ $\quad \lambda_4 = .067$ $\quad \lambda_5 = .533$

$\bar{\tau}_0 = .4$ $\quad \bar{\tau}_1 = 0$ $\quad \bar{\tau}_2 = 0$

$\bar{\tau}_4 = 0$ $\quad \bar{\tau}_3 = \bar{\tau}_5$

7. A SERIES OF EXPERIMENTS

We have carried out three sets of experiments, one for each of the three types of shelter allowance formulas discussed in section 2. There are 68 experiments in all. The first one in each set is based on standard parameter values while subsequent ones involve specified departures from those values. The experiments are coded according to type of formula: G for gap formula experiments, RP for rent proportion experiments, and CT for cash transfer experiments. The experiments are numbered from 1 to 24 within the G set and from 1 to 22 within each of the other two sets. A description of the experiments follows:

Gap Formula Experiments

G1 -- This is the standard gap formula experiment. The formula parameter values are a = .75, b = .3, and K = 0; all other parameter values are

the standard ones given in the previous section. Noting that excess profits are zero for household category 1 in all experiments, the formula may be written as $S = .75\ (R_1 - .3\bar{Y}_1)$. When applied to the values of R_1 and $\bar{Y}_1$ as they are before the shelter allowance program is introduced, the formula yields an $S/\bar{Y}_1$ ratio of .09.[8] (This ratio is expected to change after the program comes into being, and does indeed change, as we shall see later when discussing the results of the experiments.)

G2 -- Higher income elasticity of housing demand: $\alpha_1 = 1.0$ (instead of .75).

G3 -- Lower income elasticity of housing demand: $\alpha_1 = .5$.

G4 -- Higher price elasticity of housing demand (ignoring sign): $\alpha_2 = -.75$ (instead of -.5).

G5 -- Lower price elasticity of housing demand: $\alpha_2 = -.25$.

G6 -- Higher short-run price elasticity of housing supply: $\beta = .015$ (instead of .01).

G7 -- Lower short-run price elasticity of housing supply: $\beta = .005$.

G8 -- Very low short-run price elasticity of housing supply: $\beta = .001$.

G9 -- Housing supply perfectly inelastic: $\beta = 0$.

G10 -- Higher long-run (or "natural") vacancy rate: $\bar{\rho} = .05$ (instead of .03).

G11 -- Lower long-run vacancy rate: $\bar{\rho} = .01$.

G12 -- Greater sensitivity of vacancy rate to housing supply price: $\delta_1 = -6$ (instead of -3).

G13 -- No sensitivity of vacancy rate to housing supply price: $\delta_1 = 0$.

G14 -- Faster adjustment of vacancy and participation rates (to desired levels): $\gamma = \xi = \phi = .15$ (instead of .1).

G15 -- Slower adjustment of vacancy and participation rates: $\gamma = \xi = \phi = .05$.

G16 -- Rate of participation of home owners sensitive to level of benefit: $\varepsilon_1 = .5$ (instead of 0).

G17 -- Rate of participation of home owners very sensitive to level of benefit: $\varepsilon_1 = 1.0$.

G18 -- Higher rate of tax on excess profits: $\bar{\tau}_0 = .6$ (instead of .4).

G19 -- Lower rate of tax on excess profits: $\bar{\tau}_0 = .2$.

G20 -- Initial proportions of households in categories eligible for allowance reduced: $\lambda_2 = .2$ (instead of .267), $\lambda_4 = .05$ (instead of .067); other proportions increased pro rata to $\lambda_3 = .15$ (instead of .133) and $\lambda_5 = .6$ (instead of .533).

G21 -- Shelter allowance formula parameter a reduced to .6 (from .75): formula is $S = .6(R_1 - .3\bar{Y}_1)$; this yields an $S/\bar{Y}_1$ ratio of .072 based on level of R_1 before program introduced.

G22 -- Shelter allowance formula parameter a increased to .9: formula is $S = .9(R_1 - .3\bar{Y}_1)$; this yields an $S/\bar{Y}_1$ ratio of .108 based on level of R_1 before program introduced.

G23 -- Shelter allowance formula parameter a reduced to .6 with compensating reduction of parameter b to .27 (from .3): formula is $S = .6(R_1 - .27\bar{Y}_1)$; this leaves the $S/\bar{Y}_1$ ratio based on pre-program level of R_1 unchanged at .09.

G24 -- Shelter allowance formula parameter a increased to .9 with compensating increase of parameter b to .32: formula is $S = .9(R_1 - .32\bar{Y}_1)$; again this leaves the $S/\bar{Y}_1$ ratio based on pre-program level of R_1 unchanged at .09.

Rent Proportion Formula Experiments

RP1 -- This is the standard experiment based on the rent proportion type of formula. The only operative formula parameter is a, which is set at .2143, the value required to generate an $S/\overline{Y}_1$ ratio of .09 when R_1 is at its pre-program level, thus introducing some comparability between this experiment and experiment G1. The formula is therefore $S = .09R_1$. The parameters b and K are zero, of course. All other parameters have the standard values.

RP2 to RP20 -- These experiments are identical to the corresponding ones in the set G2 to G20, except for the difference in shelter allowance formula.

RP21 -- Corresponds to experiment G21: shelter allowance formula parameter a is reduced to .1714, yielding and $S/\overline{Y}_1$ ratio of .072 when R_1 is at its pre-program level.

RP22 -- Corresponds to experiment G22: shelter allowance formula parameter a is increased to .2571, yielding an $S/\overline{Y}_1$ ratio of .108 when R_1 is at its pre-program level.

Cash Transfer Formula Experiments

CT1 -- This is the standard experiment based on the cash transfer type of formula. The only operative formula parameter is K, which is set at .09. The formula is S = .09 and the $S/\overline{Y}_1$ ratio based on pre-program R_1 is also .09, so that this experiment is comparable to both G1 and RP1. Parameters a and b are zero; all other parameters have standard values.

CT2 to CT20 -- These experiments are identical to the corresponding ones in the sets G2 to G20 and RP2 to RP20, except for the differences in shelter allowance formula.

CT21 -- Corresponds to experiments G21 and RP21: K is reduced to .072.

CT22 -- Corresponds to experiments G22 and RP22: K is increased to .108.

8. TABULAR PRESENTATION OF EXPERIMENTAL RESULTS

The results of the experiments are set forth in a series of 68 tables. Results for 17 selected variables are printed for the initial (pre-program) state, the final state, and five intervening monthly periods. If the initial state obtains in month 0 and the program is introduced in month 1, actual participation in the program will commence in month 2. Month 2 may therefore be thought of as the first month in which the program is effective and results are printed for this month. Results are printed also for month 14 ("after 1 year"), month 26 ("after 2 years"), month 62 ("after 5 years"), and month 122 ("after 10 years"). Because units of measurement are arbitrary, and for ease of interpretation and comparison among experiments, all variables shown in the tables are expressed either in index form (with base 100.0 in the initial state) or as percentage ratios. The tables are generated by computer and the printed symbols therefore differ somewhat from the ones used in the previous discussion of the model. The variables as they appear in the tables are as follows, with the original symbols in brackets:

HD(1) -- individual household demand for housing services in category 1, the participating category (h_1^d)

HD(2) -- individual household demand for housing services in category 2, the non-participating "low income" rental category (h_2^d)

GD(1) -- individual household demand for non-housing goods in category 1 (g_1^d)

GD(2) -- individual household demand for non-housing goods in category 2 (g_2^d)

HDTOT -- aggregate demand for housing services (H^d)

GDTOT -- aggregate demand for non-housing goods (G^d)

HS -- aggregate supply of housing services (H^S)

PHS -- supply price of housing services (P_h^S)

RHO -- housing market vacancy rate (ρ)

N(1)/NBTOT -- number of households in category 1 as proportion of total number of households ($N_1/\bar{N}$)

R(1)/YB(1) -- rent as proportion of base income for a household in category 1 ($R_1/\bar{Y}_1$)

R(2)/YB(2) -- rent as proportion of base income for a household in category 2 ($R_2/\bar{Y}_2$)

S/YB(1) -- shelter allowance as proportion of base income for a household in category 1 ($S/\bar{Y}_1$)

(R(1)-S)/YB(1) -- portion of rent not covered by shelter allowance as proportion of base income for a household in category 1 ($(R_1-S)/\bar{Y}_1$)

C/YTOT -- total cost to government of shelter allowance program as proportion of total household base income ($C/\Sigma N_i \bar{Y}_i$)

TS/T -- proportion of aggregate taxes for financing shelter allowance program that must come from special program tax ($(T-\bar{\tau}_0 X)/T$)

TX/T -- proportion of aggregate taxes for financing shelter allowance program generated automatically by normal taxation of excess profits ($\bar{\tau}_0 X/T$)

The SHELTER computer program generates values for the full range of variables in the model but the foregoing 17 seem to us to be the ones of greatest interest. They allow a quick appraisal of the effects of a shelter allowance program on household expenditure patterns, aggregate housing and non-housing supply, the vacancy rate, proportion of households participating in the program, total program cost, and associated tax revenue required. Demand and rent levels are shown for category 2 as well as category 1 because these are

the two categories of most interest for with-and-without-allowance comparisons. (Both categories are "low income" rental categories and differ only with regard to program participation.)

9. RESULTS OF EXPERIMENTS BASED ON GAP FORMULAS

The gap formula experiments are coded from G1 to G24. As described above, the experiments begin with the "standard" one and thereafter are arranged in blocks, each block involving changes in one parameter or class of parameters. The following discussion is structured accordingly.

Standard Experiment

The standard experiment with a gap formula is G1. The results of this experiment illustrate a feature common to all of the gap experiments, namely the high degree of sensitivity of housing demand to this type of formula. The demand for housing services by participating households rises by 63.8 percent in the first month. However, there are very few households participating at first. As the level of participation rises, subsequently, the effect on aggregate housing demand becomes apparent, and so too does the effect of demand pressure on the housing supply price. With the price rising, the increase in demand is curtailed somewhat among both program participants and non-participants. However, the level of participation continues to increase and causes aggregate demand to rise in spite of the higher price level. The aggregate supply of housing responds to the incentive of a higher price but the supply increases lag behind the demand increases for many years. Ultimately the two are equated, but the process takes more than a decade. The final level of aggregate housing supply (and demand) is 6.2 percent above the initial (pre-program) level.

Before the shelter allowance program is introduced, households in the "low income" rental group spend 42 percent of their base after-tax incomes on rent. After the program is introduced, nominal rent payments by participating households rise to about 70 percent of income. (The proportion varies somewhat with price change until the final state is reached.) However, almost all of the increase is accounted for by the shelter allowance, and the amount that a household itself actually has to pay falls somewhat, stabilizing finally at 39.8 percent of the household's base income.

This is clearly an expensive type of program. With such a sharp increase in housing demand by participants and such a pronounced increase in the ratio of rent to income, the resulting program cost rises rapidly. In the first month the cost is only 0.3 percent of aggregate household base income. One year later, though, it is 2.8 percent, and after five years it is 3.5 percent. Ultimately the proportion settles down to 3.4 percent of aggregate base income, and this may be regarded roughly as the overall additional rate of tax that would be necessary to finance the program. However, since only households in the "high income" categories are actually taxed in the model, their rate is necessarily higher than 3.4 percent. (The actual rate on the income of taxable households, which is not shown in the table, turns out to be 5.3 percent.)

The automatic flow of taxes on excess profits provides some financial support for the program in the earlier periods. In the first month the taxes on excess profits provide 25.2 percent of the total required revenue, and after one year they provide 18.9 percent. However, the proportion dwindles as the housing supply price falls back towards its long-run natural level and the excess profits decline. The profits taxes account for only 7.4 percent of the total after five years and 2.0 percent after ten.

Ultimately they disappear entirely and the whole of the burden of financing the program falls on those who must pay the special tax.

Although the biggest effect on household expenditure patterns is the rise in demand for housing services by participating households, there is also some effect on the demand for non-housing goods. GD(1) increases by 3.5 percent in the first month. The increase falls back to 2.4 percent after one year, but then rises, ultimately reaching 3.7 percent. The rise in housing price also induces some decreases in GD(2), but only a temporary one. Ultimately both GD(2) and HD(2) return to their initial levels, and the only long-term budget effects are the very large increase in HD(1) and the much smaller one in GD(1).

In practice, an actual gap formula might involve restrictions which we have not incorporated into the model. There might well be an upper limit imposed on the level of rent that a participating household could claim for purposes of shelter allowance, or on its ratio of rent to income. This would reduce the sensitivity of housing demand to the formula. However, a lesson of major importance is that calculations of program cost based solely on historical data for a period when the program was not operative may seriously underestimate actual cost if the behavioural response of households to the pattern of incentives provided by the program is ignored. The shelter allowance in experiment G1 is only 9 percent of base income if the calculation is based on actual rent paid before the program is introduced. However, when the program is in effect, the ratio rises to about 30 percent. Actual program cost would thus be more than three times the estimate based on pre-program data.

Demand Elasticity Experiments

Experiments G2 - G5 involve changing either the income or the price elasticity of demand from its standard level. Raising the income elasticity

reduces the impact of the program on housing demand and lowering the income elasticity increases the impact. (Recall that the gap formula reduces both the effective price and the effective income.) Raising the price elasticity increases the impact and lowering it reduces the impact. There is considerable uncertainty in the relevant literature about the "true" values of these elasticities and we have been concerned to determine how sensitive the results are to different elasticity values.[9] The answer given by the experiments is quite clear: the results are far more sensitive to the price elasticity than to the income elasticity. It is clear that while a gap formula may have a very large impact on the behaviour of participating households, the magnitude of the impact can be known with no more certainty than the magnitudes of the demand elasticities, and especially the price elasticity of demand.

The final-state increase induced in the supply of housing in experiments G2 - G5 ranges from 13.5 percent down to 1.1 percent, these two extremes being associated with the high and low price elasticity assumptions, respectively. Similarly, the program cost differs greatly between the same two price-elasticity experiments. At one extreme, the cost is 5.9 percent of total household base income; at the other, it is only 1.7 percent. The price elasticity is obviously a critical parameter in assessing the impact of a gap-type formula. (Again it should be kept in mind that in practice the formula might include a ceiling on rent or the rent/income ratio which would limit the effects of a high price elasticity and keep down the program cost.)

Supply Elasticity Experiments

The short-run price elasticity of supply varies among experiments G6 - G9. At one extreme it takes on a value of .015; at the other it is zero. Except in the zero case, the supply adjustment is all but complete in the first ten years. (The final states are, of course, identical; only the speed of adjustment is affected.) With a

positive elasticity, the supply price rises but always falls back to its long-run normal level. With a zero elasticity, on the other hand, there is a permanent price increase of 13.2 percent. The aggregate demand rises very slightly, which it is permitted to do even though the supply is fixed because there is a permanent reduction of the vacancy rate. Excess profits persist, and provide some continuing offset to the program cost. There is a modest increase in the demand for non-housing goods by program participants but a drop in both housing and non-housing demand by non-participating rental households, in consequence of the higher level of the rental price. The ratio of rent (price times quantity of services (bought) rises sharply, as it does in all of the gap formula experiments.

It is apparent that the short-run elasticity of housing supply is of importance in determining the speed with which the housing market and the economy at large adjust to a newly introduced shelter allowance program. However, the price elasticity of supply appears to be much less important than the price elasticity of demand in determining longer-run effects, and of course it is of no importance at all in our model in determining the very long-run or ultimate effects unless it is set at zero.

Vacancy Rate Experiments

The effects of alternative assumptions about the vacancy rate are the subject of investigation in experiments G10 - G13. In G10 the "natural" or long-run rate is raised to 5 percent (from 3 percent) and in G11 it is reduced to 1 percent. Aside from the monthly vacancy rates themselves, the effects of these changes are quite minor. The same is true of experiments G12 and G13, in which the value of δ_1 (which governs the responsiveness of the vacancy rate to the current supply price) is changed: in G12, it is set at -6 (compared with -3 in the standard case), thereby making vacancy rates more

sensitive to price changes; in G13 it is set at zero, thus making the rates completely insensitive to price changes. Neither experiment produces results which differ appreciably from those of the standard experiment.

Experiments with Partial Adjustment Parameters

The monthly partial adjustment parameters γ, ξ, and ϕ are increased to .15 in experiment G14 and reduced to .05 in experiment G15 (compared with the standard value of .1). As expected, the model adjusts more rapidly and there is faster convergence to the final stationary state in G14, and conversely in G15. However, the differences are not great and one concludes that the rates of adjustment are not particularly important parameters for purposes of assessing the effects of a shelter allowance program.

Home-Owner Participation Rate Experiments

The parameter ε_1 controls the extent to which "low income" home owners are induced to become renters in response to the level of allowance available under the program. In the standard case, ε_1 is set at zero so that the rate of participation of (potentially) eligible home owners is fixed (at .1). In experiments G16 and G17, ε_1 is set at 0.5 and 1.0, respectively, implying increased degrees of sensitivity to the allowance level. The effect is to pull substantially greater proportions of "low income" home owners into the program, but even so the final ratio of participating households to the total number of households rises only from 19.4 percent in the standard experiment to 19.9 percent in experiment G16 and to 20.3 percent in G17. The effects on demand, supply, and other variables of the system are correspondingly small. The reason for the small effects is simply that "low income" home owners are a quite small proportion of all households, and even a large proportionate change of tenure category is small in absolute terms.

Experiments Involving Different Rates of Tax on Excess Profits

The "excess profits" of landlords are taxed at a (marginal) rate of 40 percent in the standard experiment. The rate is increased to 60 percent in experiment G1S and lowered to 20 percent in G19. (The choice of a standard rate of 40 percent is necessarily rather arbitrary and these two experiments are designed to see how much difference the choice makes.) Virtually the only effects discernible in the tables of results are the raising or lowering of the volume of tax revenue generated by the excess profits, and the necessarily concomitant lowering or raising of the special tax revenue necessary to meet the full cost of the program.

Experiment with a Smaller Population of Eligible Households

The proportions of eligible renter and owner households are reduced in experiment G20. This, coupled with the standard assumptions about participation rates, produces a population of participants equal to 14.5 percent of the total number of households in the model, compared with 19.4 percent in the standard experiment. The nature of the program's effects is unchanged but the impact on aggregate demand, and consequently on aggregate supply, is lessened substantially, as one would certainly expect. The cost of the program is reduced accordingly. With a smaller increase in aggregate demand there is less upward pressure on the housing supply price, and this causes somewhat higher levels of individual household demand than in the standard experiment, both for housing services and for non-housing goods, and among households in both category 1 and category 2. Other more or less minor changes are also evident in the tables.

Experiments with Different Formula Parameters

Experiments G21 and G22 involve different choices of the a and b parameters of the shelter allowance formula. The a parameter is reduced to 0.6 (from 0.75) in G21 and increased to 0.9 in G22, with no change in the b parameter (and all non-formula parameters at their standard levels). These changes have dramatic effects on the household consumption patterns of participating households, and much smaller (but non-trivial) effects on non-participating households. In experiment G22 (with a marginal rate of subsidy of 90 percent), HD(1) increases by a phenomenal 149.7 percent, compared with 65.2 percent in the standard experiment, and 36.2 percent in experiment G21. Program costs respond accordingly, reaching 7.8 percent of total household base income in the final state in experiment G22, compared with 3.4 percent in the standard experiment and only 1.9 percent in G21. There are also substantial differences in the effects on aggregate housing demand and supply. In G22, the housing supply price is pushed up to 21 percent above its original level after the program has been in operation for one year. The price increase eventually disappears, of course, as it does in all experiments in which the price elasticity of housing supply is not zero, but this happens only slowly.

The a parameter is what determines the difference between demand and supply prices in the case of participating households. The demand price for these households is (1-a) times the supply price, and as a approaches 1, the demand price approaches zero (i.e., housing comes close to being a free good). No doubt there would be restrictions imposed in any real application of the formula which would prevent an increase in demand of the kind produced in experiment G22.[10] However, the experiments do serve to indicate the extreme sensitivity of results to the choice of the a parameter.

In experiments G23 and G24, the a parameter is again lowered to 0.6 and increased to 0.9. Now, though, there are compensating adjustments to the b parameter so that the shelter allowance (S) would remain at 9 percent of the base income of participating households if those households maintained their pre-program ratios of rent to income.[11] In fact, of course, households respond vigorously, as we have seen, and the rent/income proportion rises sharply. The result in experiments G23 and G24 is that the intended compensatory adjustment of the b parameter has rather little effect on the overall increase in demand for housing services. There is some effect: housing demand is reduced a little and non-housing demand increased on the part of participating households, and non-participating households experience some effects also. The cost of the program is brought down a little. But the dominant feature of the experiments is still the extreme sensitivity of results to the a parameter.

10. RESULTS OF EXPERIMENTS BASED ON RENT PROPORTION FORMULAS

The experiments relating to formulas of the rent proportion type are coded RP1 - RP22. To a considerable degree the results are similar to those obtained in the corresponding gap formula experiments and a much briefer summary suffices.

Standard Experiment

The standard rent proportion experiment is RP1. In this experiment a program participant receives an allowance equal to somewhat more than a fifth of his monthly rental bill. The actual proportion (a) is .2143, which would yield an allowance equal to 9 percent of base income if the household continues to pay the same rent. In fact, though, the household responds by increasing its demand for housing services by 12 or 13 percent (12.8 in the long run), and the ratio of allowance to income is 10.2 percent in every

period. There is also an increase of 7 or 8 percent (8.2 in the long run) in the household's demand for non-housing goods. The price of housing services rises a little (by 1.2 percent after one year and by lesser amounts in other periods shown in the table), and this induces decreases in the demands by non-participating households for housing and non-housing goods, but only very small ones. In the aggregate, demand for housing increases by just under 1 percent in the long run, and the supply increases by the same proportion. The vacancy rate changes hardly at all throughout the experiment. The proportion of households participating in the program rises to 14.4 percent after one year and to 19.4 percent after ten, at which level it remains. (These participation rates are identical to those in the standard gap formula experiments.) From 42 percent of base income before the shelter allowance program, the ratio of rent to income rises to 47.4 percent in the long run for a participating household, of which 37.2 represents the portion actually paid by the household (i.e., net of allowance). The ultimate cost of the program is 1.2 percent of total household base income, which compares with 3.4 percent in the standard gap formula experiment. Even though both experiments are designed to yield the same allowance level on the basis of pre-program rental levels, and even though the participation rates are identical, the program cost when the rent proportion formula is used turns out to be roughly a third of the cost when the gap formula is used. Since the effect on the housing price is much less in the rent proportion experiment, so too are the levels of short-run excess profits earned by landlords, and the proportions of program cost covered by profit taxes during the period of transition to a final state are correspondingly lower.

The most notable features of experiment RP1 are that the rent proportion formula has much less effect on the housing market than the gap formula and that the program cost is far lower. This is a feature also of all the other experiments based on a rent proportion formula.

Other Experiments

The other experiments yield results which in many cases are similar in character to those of the corresponding gap formula experiments, although different in magnitude. Changes in income elasticities of demand (experiments RP2 and RP3) have very little effect on any of the results, reflecting the fact that income does not enter into the allowance calculation, as it does in a gap formula. Changes in the price elasticity of demand do have a substantial impact (RP4 and RP5), as in the gap formula experiments: when the price elasticity (α_2) is set at -.75 the program induces a 19.8 percent increase in housing demand by participating households in the long run; when the elasticity is set at -.25 it induces an increase of only 6.2 percent. The price elasticity of demand is thus seen again to be a key parameter in assessing the likely effects of a shelter allowance program, although the effects are much less dramatic than in the gap formula case. The price elasticity of supply, on the other hand, appears to be of comparatively minor importance (experiments RP6 - RP9). Even when β is set as high as .015 or as low as zero, the differences are quite small. In the extreme $\beta = 0$ case, aggregate demand for housing services is 100.2 in the final state, compared with 100.9 for the standard $\beta = .01$ experiment. The most notable difference in the $\beta = 0$ case is the persistence of a 1.7 percent increase in housing price (the price increase vanishes in the standard case, of course) and the continuation of excess profits and the associated profits taxes.

Experiments with different long-run levels of the vacancy rate and different degrees of price-sensitivity of the vacancy rate (RP10 - RP13) have scarcely any effects. There are small differences in excess profits and profits taxes, and of course the vacancy rates themselves are different when their long-run levels are adjusted up or down, but otherwise the effects are negligible. The same is true of experiments with higher and lower rates of partial adjustment for vacancy and participation rates (experiments RP14 and RP15): excess profits and their tax share are affected slightly but all other effects are negligible.

Changing the degree of responsiveness of home owners to the level of shelter allowance has only a small effect with a gap formula; with a rent proportion formula it has virtually none (experiments 16 and 17). The effects are simply not discernible in the tables. One of the reasons is that the proportion of (potentially) eligible owner households is small, as it was in the gap formula experiments. In addition, however, the marginal subsidy rate (a) is far lower than in the gap formula experiments, and the inducement to change fom owning to renting therefore much less.

Raising or lowering the rate of tax on excess profits (RP18 and RP19) affects the volume of tax revenue from that source, and thereby reduces the special tax rates required to finance the program. However, in all other respects the effects are virtually undiscernible.

Reducing the size of the eligible population (RP20) brings about a corresponding reduction in the number of program participants and in the cost of the program. With fewer households participating, their combined effect on aggregate housing demand is accordingly smaller, and so too the effect on the price of housing. The supply of housing increases by 0.6 percent in this

experiment in the long run, compared with 0.9 percent in the standard experiment. In other respects the results of the two experiments differ only very slightly.

The response of participating households to the program incentive is enhanced by raising the formula parameter a and diminished by lowering it, as one would expect (experiments RP21 and RP22). With a = .1714, the program induces a 9.9 percent increase in the demand for housing services by a participating household, in the long run, and a 6.5 percent increase in its demand for non-housing goods. With a = .2571, the induced increases are 16.0 and 10.0 percent, respectively. In the one case the allowance is 7.9 percent of base income; in the other it is 12.5 percent. The cost of the program is correspondingly greater. The price of housing rises somewhat more (although the difference from the pre-program price is never greater than 1.5 percent) and the ultimate levels of aggregate housing supply and demand are only about 0.5 percent higher in the a = .2571 case than in the a = .1714 case. In general, the formula parameter a, which determines the effective price of housing service to a participating household, is an important one for purposes of evaluating likely program effects. The experiments make it clear that this parameter, the price elasticity of demand, and the size and participation rate of rental households, are by far the most critical parameters.

11. RESULTS OF EXPERIMENTS BASED ON CASH TRANSFER FORMULAS

The cash transfer experiments are CT1 - CT22. Again, a brief summary is sufficient, since many of the results can be anticipated in light of the earlier experiments.

Standard Experiment

The standard level of transfer is set at 9 percent of the base income of participating households. This produces an immediate increase of 6.6 percent in the housing demand of these households and a 10.6 percent increase in their demand for other goods in experiment CT1. The ultimate increases are only slightly greater: 6.7 and 10.7 percent, respectively. What distinguishes the cash transfer formulas from the others is that they provide no special incentive to the household to increase its purchases of housing services rather than other purchases. The result is that the allocation of the transfer depends solely on the income elasticity of demand, and this is such that non-housing purchases are increased more than purchases of housing services. The ratio of allowance (transfer) to base income is 9 percent on the basis of the pre-program rent level and it is 9 percent also after the program has been introduced. The cost of the program eventually reaches 1 percent of aggregate base income, making it the least expensive of the three types examined in the experiments. The housing price is affected very little, the vacancy rate remains constant, and aggregate housing supply and demand rise only by 0.1 percent in the long run. The ratio of rent payments to base income of participating households rises from 42.0 to 44.8 percent but the portion of rent actually paid by the households falls to 35.8 percent. (These changes are the same in both the short and the long run.) Excess profits are very small, and so too is their contribution to tax revenue. With very little change in housing price, the expenditure pattern of non-participating households is almost unaffected. In short, this is the least costly of the three standard shelter allowance formulas and the one with the least impact on the housing market.

Other Experiments

Changes in the income elasticity of demand have a significant effect but changes in the price elasticity of demand have very little effect (experiments CT2 - CT5). Increasing the income elasticity from .75 to 1.0 raises the induced increase in housing demand by participating households and lowers the induced increase in non-housing demand. (Both types of demand increase by 9.0 percent in the long run.) Reducing the income elasticity to 0.5 has the opposite effect.

Changing the short-run price elasticity of supply has hardly any effect (CT6 - CT9). Even making the supply perfectly inelastic (CT9) produces very little difference in results.

Changes in the long-run level of the vacancy rate have negligible effects on all variables except the vacancy rates themselves (CT10 and CT11). Altering the price sensitivity of the vacancy rate has negligible effects (CT12 and CT13) and so too does increasing the rates of partial adjustment (CT14 and CT15). Even making the home-owner participation rate sensitive to the level of allowance has no discernible effect (CT16 and CT17). A higher rate of tax on excess profits increases the share of program cost met from this source and a lower rate decreases the share, but otherwise the results are virtually unaffected (CT18 and CT19). Reducing the size of the eligible population lowers the number of participants and the program cost but all other effects are extremely small (CT20); for example, the maximum increase in housing price in this experiment is 0.1 percent, compared with 0.2 percent in the standard experiment.

A higher level of allowance induces greater increases in demand by participating households, both for housing services and non-housing goods,

and a lower allowance level induces smaller increases (CT21 and CT22). The program cost is accordingly higher in the first case and lower in the second. There are some other effects as well but they are extremely small. The aggregate levels of supply and demand and the level of the housing price are affected only very slightly.

To summarize, a shelter allowance program based on a cash transfer formula has very little effect on the housing market at large, either in the short run or the long run. The demands for housing services and non-housing goods on the part of participating households are responsive to the level of the transfer and the income elasticity of demand for housing services, but the effects on non-participating households are negligible. The program cost is affected by participation rates and allowance levels. The share of cost met from excess profits taxes is very small, though variable with the rate of tax assumed.

12. ADDITIONAL OBSERVATIONS

There are several issues which merit attention but which are not conveniently treated within the framework of the simple model that we have used. We provide some brief comment on these issues in the present section.

Rent Controls

We have not modelled the effects that rent controls would have in conjunction with a shelter allowance program but the general nature of the effects is clear. If the controls were binding -- if the ceiling on the rental price were below the price that would obtain without the controls -- then any upward pressure on price induced by the program would not be transmitted to the supply side of the market. The normal price incentive to increase supply would therefore be curtailed, and some of the program-induced

increase in demand would go unsatisfied. There would be downward pressure on the vacancy rate and a greater tendency towards the sharing of scarce dwelling space. The effects might be felt by both participating and non-participating households. The normal price rationing mechanism would be inoperative, or only partially operative, and some other form of rationing mechanism would come into play, either explicitly or implicitly. The situation would not be different in character from that which would exist without the program but the quantitative significance of the controls would be increased. Any supply shortage resulting from the existence of rent controls would tend to be augmented by the introduction of a shelter allowance program into an already tight housing market.

Household Composition

As observed earlier, the formulas tested with the model make no allowance for differences in household age composition, numbers of dependents, numbers of income earners, and other characteristics that might be considered relevant in setting the actual formula or rules for a shelter allowance program. The types of effect of the program on the housing market and on the economy at large would not be altered by considerations of household composition, but such considerations are important from an equity point of view. A four-person household with all members working and a four-person household with one single parent and three young children are obviously in quite different circumstances and one might well want a shelter allowance formula to reflect such differences. This is not an issue on which we can contribute in this report but we take note of its practical importance.

Composition of the Housing Stock

The model treats "housing services" as if they were a homogeneous commodity. In fact, such services are provided by a stock of housing which includes a wide range of structures (apartments, unattached single-family

dwellings, etc.) and in which the units differ greatly with regard to location, size, and other physical features. The effects on supply that we have examined in the experiments relate only to the total stock (or flow of services), and not to its composition. Of necessity we have used a broad brush to paint a picture of how a shelter allowance program might affect the housing market, the economy, and individual participating and non-participating households. A more detailed and comprehensive analysis would take into account not only effects on the size of the housing stock (as we have done), but also effects on the composition of the stock, having regard for differences between the stocks of rental and owner-occupied units, the possibilities for subsidized households to move from one type of unit to another when their demand for housing increases, and the possibilities for qualitative improvements to existing units (renovations, extensions, repairs) so that they would provide a greater volume of "services" without increasing the actual number of units.

Short-Run Income Variability

A consideration that is possibly of some consequence is the extent to which participation in a shelter allowance program and the cost of the program might be affected by short-run income variability. It seems likely that incomes would fluctuate more freely than rental prices over the course of a "business cycle" and that this might engender a pattern of flows into and out of the program as households moved into and out of the qualifying zone. In addition, there is the issue of seasonal variability: could households qualify in some periods of the year but not in others? Related to this is the question of just how income would be defined -- on an annual basis, a quarterly basis, or a monthly basis. The definition of income for

purposes of the program may have a significant bearing on the extent to which households move into and out of the program. Aside from seasonal and business-cycle type fluctuations, there is much evidence to suggest that a large proportion of individuals experience quite sharp changes in income over a one, two, or three-year period. One might expect, therefore, that there would be a considerable degree of turnover among program participants. This implies that a larger fraction of all households would be affected by a program over a period of time than the conventional participation rates alone would indicate. (By analogy, a much larger proportion of people experience unemployment during a year or a period of years than is indicated by the conventional unemployment-rate measures.) The extent of turnover has implications also for the administrative costs of a program; the costs would no doubt be higher the greater the volume of new entrants to be processed in the course of a month or a year.

Relationships with Income Tax, Welfare Programs, and Other Programs

There are various issues pertaining to the relationship of a shelter allowance program with other programs and regulations. We can give these issues no treatment here, but it is worthwhile to note them. There are two broad classes of questions that might be considered. First, there is the question, already raised, of how income would be defined, and the more specific questions of how the definition would be coordinated with income-tax definitions, whether the allowances would be taxable and, if so, in what manner. Second, there is the question of how the allowances would be coordinated with the rules of eligibility for welfare programs: would they be treated as income and, in effect, simply replace welfare payments from provincial or municipal sources? If so, one

of the effects of the program would be to transfer some of the burden of welfare costs from the provincial and municipal governments to the federal government.

Work Incentives

Another issue is the extent to which a shelter allowance program might reduce individual work incentives, and thereby have some effect on the level of employment, hours worked, and national income. This is often a consideration in assessing the impact of a government transfer program. Without undertaking a careful analysis, it seems likely to us that the aggregate effects on employment and the labour force would be small.[12] However, that is not to say that the issue is not one to be concerned about. The costs of the program may well be affected if some households reduce their work effort, and hence income, thereby increasing the overall level of program participation, and perhaps raising the average level of allowance payment. (There is some analogy with the changes in the unemployment insurance system in 1971 and 1972: it is widely believed that some of the cost increases that ensued, and the higher observed unemployment levels of the early 1970's, were the result of a reduction of job search and retention incentives.)

13. SUMMARY AND CONCLUSIONS

It has been our purpose in this report to develop a theoretical model of a housing market and to use this model experimentally to analyse the effects of introducing a program of shelter allowances. We have described the model in detail in two forms: a dynamic or short-run form in which the model moves forward one month at a time; and a stationary or long-run form in which all adjustments have been made within the market

and time no longer matters because every month is like the preceding one. We have discussed the use of the model in computer simulations and have described and carried out a series of 68 experiments, each one designed to test a different shelter allowance formula or a different assumption about how the housing market would respond to an allowance program. The formulas of interest are of three types: gap formulas, in which a participating household receives some fraction of the amount by which its rent exceeds a specified proportion of its income; rent proportion formulas, in which it simply receives a fraction of its rent, without reference to income; and cash transfer formulas, in which it receives a straight transfer payment and is free to spend it in whatever manner it wishes. For each of these types of formulas we have experimented with alternative formula parameters, elasticities of housing market demand and supply, long-run vacancy rates, market rates of adjustment, program participation rates, tax parameters, and sizes of eligible population. We have presented the results of the 68 experiments in a detailed set of tables and have discussed the results and compared them, as appropriate. In addition, we have offered some brief comments on a number of issues not conveniently dealt with by use of the model and which it has not been possible to treat in any detail in this report. Our principal findings may be summarized as follows:

(1) Programs based on a gap type formula produce by far the greatest effects on individual household behaviour and on the housing market as a whole. Individual and market responses are highly sensitive to the use of this type of formula and to the particular values of its parameters, especially the fraction of the rent-income gap that is paid under the formula. Programs based on rent proportion and

cash transfer formulas affect the behaviour of participating households, of course, but their effects on non-participating households and on the housing market as a whole are quite small; in the case of the cash transfer formulas the effects outside of those on individual participating households are negligible.

(2) Unless the behavioural response of participating households is properly taken into account, a program based on a gap type formula runs the risk of being far more expensive than would be anticipated. In our standard gap formula experiment we set the allowance level so that it would be 9 percent of the base income of eligible households if household rents were to remain at their pre-program level. In fact, households responded vigorously, increasing their demand for housing services by 65 percent, and thereby causing the allowance level and the total program cost to be more than three times what they were "anticipated" to be. This suggests that cost predictions based on pre-program rent and income data have to be interpreted with great care when a gap formula is contemplated. In the case of a rent proportion formula the "unanticipated" cost increase is likely to be much smaller, and in the case of a cash transfer formula, smaller still, on the basis of our experiments. In practice, any formula would probably incorporate a ceiling on the level of allowance payable to an individual household, and this would restrict the increase in program cost. The foregoing may then be interpreted to mean that such a ceiling may be an extremely important adjunct to the basic gap formula and that a large proportion of households might in fact draw allowances at the maximum level.

(3) The individual and aggregate effects of a shelter allowance program based on a gap formula are extremely sensitive to the price elasticity of demand. With an elasticity of -.5, the demand for housing services by participating households increases (in our standard gap formula experiment) by 65 percent, in the long run; when the elasticity is set at -.75, the increase is 134 percent; and when the elasticity is -.25, the increase is only 17 percent. Given the uncertainty that exists in the econometric literature about the "true" price elasticity, this implies a high degree of uncertainty about the actual response to a gap formula program. The uncertainty is unfortunate, but it is a fact; no amount of research is likely to do away with it to the degree necessary to make an accurate prediction of demand response possible prior to the introduction of a gap formula program, and that should simply be recognized. This conclusion suggests again the importance of giving careful attention to a ceiling on the allowance payable.

(4) The price elasticity of demand also affects significantly the response to a rent proportion formula, but the effects are much less dramatic. The price elasticity has very little effect with a cash transfer formula. The income elasticity of demand has some effect with all three formula types, but the effects are very small in the case of the rent proportion formula. The point about uncertainty of the "true" magnitude applies also to the econometric literature relating to income elasticity estimates, although it appears less critical than in the case of the price elasticity.

(5) Whatever the formula used, a shelter allowance program, to the extent that it increases demand for housing services, can be expected to cause some upward pressure on housing prices. (The demand increases may be offset in part by increased taxes necessary to finance the program.) Depending on the speed with which the supply side of the market responds, the price increase will abate more or less slowly. For a given initial allowance level, a gap formula is likely to produce the greatest demand rise, and hence the largest price increase. Our experiments suggest that price effects may be quite small with the other two formula types, and indeed negligible with the cash transfer type.

(6) The degree of "tightness" of a housing market may be represented by its vacancy rate and by its price elasticity of supply. For purposes of analysing the response to a shelter allowance program, the price elasticity is the critical parameter. A demand-augmenting program introduced into a "tight" (supply constrained) market will, of course, have more of an effect on the price of housing than if it were introduced into a "loose" market situation. This is evidenced by the experiments based on assumed alternative supply elasticities. Over a considerable range, however, the supply elasticity makes rather less difference than one might have expected. If the elasticity is set at a very low level, the price goes higher and the increase lasts longer, and if it is set at zero (supply perfectly rigid) the price increase never vanishes. The supply elasticity really matters significantly only in the gap formula experiments, and while it is clearly of some importance in those it appears to be a much less critical parameter than the price elasticity

on the demand side of the market or the price-related parameter of the formula itself.

(7) The experiments with different assumed rates of adjustment of vacancy rates and program participation rates suggest that these are not likely to be critical parameters. They would be of some importance if one were concerned with very short-run effects (i.e., over a period of a few months) but concern is more likely to be focussed on longer-run effects, and for these they are of little significance.

(8) The extent to which "marginal" home owners might respond by becoming renters so as to be eligible for a shelter allowance program available only to renter households appears to be of little importance as far as aggregate market effects and program costs are concerned, principally because of the small proportion of households for which this is likely to be a possibility. While such shifts may be of concern in themselves, their aggregate effects are likely to be quite minor in comparison to the effects of differences in other parameters of the system. The participation rate of renter households is, of course, important. We have assumed that 70 percent of eligible renter households would participate, and that this percentage would be insensitive to the actual level of allowance available. (It might well be somewhat sensitive to the amount and nature of publicity given to the program.) If the participation rate were higher, the program cost and market cost would, of course, be increased in some degree.

(9) Assuming a smaller size of eligible population, with the participation rates unchanged, reduces the cost and effects of a program, of course. However, the effects are similar in character; only their scale is reduced to some extent.

(10) To the extent that program-induced demand increases cause rental prices to rise, landlords will be the recipient of additional or "excess" profits. Normal taxation of these profits will bring into the federal treasury some amount of revenue which may be regarded as a partial offset to the cost of the program. The proportion turns out not to be very high, after an initial period, in most of our experiments, and it wanes as the housing supply responds and the price increase abates -- unless, of course, the supply is assumed perfectly fixed. In the fixed-supply experiment with a gap type of formula, and assuming a tax rate of 40 percent, the excess profits yield tax revenue equal to a little more than a fifth of the total program cost, in the long run; with other formulas, the proportions are far lower (8 percent with a rent proportion formula and less than 1 1/2 percent with a cash transfer formula).

(11) Without undertaking a detailed analysis, we have noted that if a housing market is subject to rent controls, any increase in demand resulting from the introduction of a shelter allowance program will simply result in a fraction of that demand going unsatisfied. With price increases blocked by the controls (assuming the rent ceiling actually to be effective), the supply side of the market will not respond to the demand increase. The vacancy rate may fall, but the

scope for meeting demand increases from existing excess capacity may be small. With the system of price rationing inoperative (or partially inoperative) some other rationing mechanism will necessarily come into play -- either by the introduction of regulations determining who gets the available supply or by differences in the luck, aggressiveness, and persistence of households in their search.

(12) Among the other issues that we have noted but have not been able to treat in detail are the importance of the definition of income in any shelter allowance program in which income is relevant, the need for coordination of allowances with the income tax system, the question of how allowances would be treated in determining eligibility under provincial and municipal welfare programs, the importance of taking into account differences of household composition and dependency characteristics in setting the rules for allowance levels and eligibility, the possibility of high turnover rates in a shelter allowance program because of "cyclical," seasonal, and other forms of income variability (with implications for administrative costs), and the effects of a program on work incentives. (As noted, we would anticipate some work-incentive effects but would expect them to be quite small, in the aggregate.)

FOOTNOTES

1) An alternative interpretation of a and b is that the subsidy rises by a dollars for every dollar by which rent exceeds the fraction b of income.

2) This is in line with the Mills and Sullivan (1981) view that, "Housing construction is almost certainly a constant-returns-to-scale industry." (p.252)

3) This is a conditional equilibrium in the sense that for any P_h^s that persists $\hat{\rho}$ will be the vacancy rate that persists.

4) Profits, as we use the word here, can be either positive or negative.

5) Values for key parameters were chosen in consultation with Eric Tsang of C.M.H.C.

6) The most recent evidence on elasticity parameters comes from the U.S. Experimental Housing Allowance Program. For summaries of this evidence, see Hanushek and Quigley (1981), pages 196-208, and Cronin (1981). For an overview of other evidence, see Mills and Sullivan (1981), pages 261-62.

7) Standard values are reported for $\hat{\pi}$ and $\hat{\theta}$, rather than for the more basic parameters σ_0 and ε_0, because they are more readily interpretable. In the standard case, $\hat{\pi}$ and $\hat{\theta}$ are held constant since σ_1 and ε_1 are both 0.

8) There are, of course, no households in group 1 before the program is introduced. The use of 'before' refers to the incomes of those households in groups 2 and 4 that moved into group 1. This same comment applies to the results shown for the initial state for all tables at the end of this study.

9) For a discussion of the range of likely values for price and income elasticities, see Mills and Sullivan (1981), pages 261-62. For a summary tabular presentation of the estimates from the Experimental Housing Allowance Program, see Hanushek and Quigley (1981), pages 200-01.

10) For an interesting variant of the basic gap formula designed to induce households to choose that level of housing consumption, and hence subsidy, deemed appropriate by the authorities, see Olsen (1981) page 371.

11) It seems to us helpful to compare alternative schemes that have the same budget implications in the absence of behavioural responses.

12) The effects in some particular households may, of course, be substantial, especially as they relate to secondary workers.

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MODEL OF SHELTER ALLOWANCE EFFECTS: DYNAMIC (SHORT-RUN) FORM

Demand for Housing Services

$$(1) \qquad h^d_{it} = \alpha_0 (Y_{i,t-1}/\bar{P}_g)^{\alpha_1} (P^d_{hit}/\bar{P}_g)^{\alpha_2} \qquad (i=1,2,3,4,5)$$

$$(2) \qquad H^d_t = \sum_{i=1}^{5} N_{it} h^d_{it}$$

Demand for Other Goods

$$(3) \qquad g^d_{it} = (Y_{it} - P^d_{hit} h^d_{it})/\bar{P}_g \qquad (i=1,2,3,4,5)$$

$$(4) \qquad G^d_t = \sum_{i=1}^{5} N_{it} g^d_{it}$$

Supply of Housing Services

$$(5) \qquad H^s_t = H^s_{t-1} [P^s_{h,t-1}(1-\rho_{t-1})/\bar{P}^s_h(1-\bar{\rho})]^{\beta}$$

Housing Market Balance Equation

$$(6) \qquad H^s_t = \left(\frac{1}{1-\rho_t}\right) H^d_t$$

Vacancy Rates

$$(7) \qquad \rho_t = \rho_{t-1} + \gamma(\hat{\rho}_{t-1} - \rho_{t-1})$$

$$(8) \qquad \frac{\hat{\rho}_t}{1-\hat{\rho}_t} = \delta_0 (P^s_{ht}/\bar{P}_g)^{\delta_1}$$

$$(9) \qquad \frac{\bar{\rho}}{1-\bar{\rho}} = \delta_0 (\bar{P}^s_h/\bar{P}_g)^{\delta_1}$$

Shelter Allowance Formula

(10) $S_t = a[R_{1t} - b(\bar{Y}_1 + X'_{1t})] + K \qquad (S_t \geq 0)$

Prices and Rents

(11) $P^d_{h1t} = (1-a)P^s_{ht}$

(12) $P^d_{hit} = P^s_{ht} \qquad (i=2,3,4,5)$

(13) $R_{it} = P^s_{ht} h^d_{it} \qquad (i=1,2,3,4,5)$

Incomes

(14) $Y_{1t} = (1-ab-\tau_{1t})(\bar{Y}_1 + X'_{1t}) + K$

(15) $Y_{it} = (1-\tau_{it})(\bar{Y}_i + X'_{it}) \qquad (i=2,3,4,5)$

(16) $X_t = [P^s_{ht}(1-\rho_t) - \bar{P}^s_h(1-\bar{\rho})] \sum_{i=1}^{5} N_{it} \left(\frac{h^d_{it}}{1-\rho_t}\right)$

(17) $X'_t = (1-\bar{\tau}_0)X_t$

(18) $X'_{it} = (\eta_i X'_t)/N_{it} \qquad (i=1,2,3,4,5)$

Tenure and Shelter Allowance Program Participation

(19) $\pi_t = \pi_{t-1} + \xi(\hat{\pi}_{t-1} - \pi_{t-1})$

(20) $\theta_t = \theta_{t-1} + \phi(\hat{\theta}_{t-1} - \theta_{t-1})$

$$(21) \quad N_{1t} = \pi_t \bar{N}_2 + \theta_t \bar{N}_4$$

$$(22) \quad N_{2t} = (1-\pi_t)\bar{N}_2$$

$$(23) \quad N_{3t} = \bar{N}_3$$

$$(24) \quad N_{4t} = (1-\theta_t)\bar{N}_4$$

$$(25) \quad N_{5t} = \bar{N}_5$$

$$(26) \quad \frac{\hat{\pi}_t}{1-\hat{\tau}_t} = \sigma_0 + \sigma_1(S_t/Y_{2t}-\sigma_2) \qquad (S_t>0)$$

$$(27) \quad \frac{\hat{\theta}_t}{1-\hat{\theta}_t} = \varepsilon_0 + \varepsilon_1(S_t/Y_{4t}-\varepsilon_2) \qquad (S_t>0)$$

Government Budget

$$(28) \quad C_t = N_{1t}S_t$$

$$(29) \quad T_t = C_t$$

$$(30) \quad T_t = \sum_{i=1}^{5} \tau_{it}(\bar{Y}_i+X'_{it})N_{it} + \bar{\tau}_0 X_t$$

$$(31) \quad \tau_i = \bar{\tau}_i \left[\frac{T_t-\bar{\tau}_0 X_t}{\sum_{i=1}^{5} \bar{\tau}_i(\bar{Y}_i+X'_{it})N_{it}} \right] \qquad (i=1,2,3,4,5)$$

Initial Population of Households

$$(32) \quad \bar{N}_i = \lambda_i \bar{N} \qquad (i=2,3,4,5)$$

MODEL OF SHELTER ALLOWANCE EFFECTS: STATIONARY (LONG-RUN) FORM

Demand for Housing Services

$$(1)' \qquad h_i^d = \bar{\alpha}_0 (Y_i/\bar{P}_g)^{\alpha_1} (P_{hi}^d/\bar{P}_g)^{\alpha_2} \qquad (i=1,2,3,4,5)$$

$$(2)' \qquad H^d = \sum_{i=1}^{5} N_{it} h_i^d$$

Demand for Other Goods

$$(3)' \qquad g_i^d = (Y_i - P_{hi}^d h_i^d)/\bar{P}_g \qquad (i=1,2,3,4,5)$$

$$(4)' \qquad G^d = \sum_{i=1}^{5} N_i g_i^d$$

Housing Market Equilibrium Condition

$$(6)' \qquad H^s = \left(\frac{1}{1-\bar{\rho}}\right) H^d$$

Shelter Allowance Formula

$$(10)' \qquad S = a(R_1 - b\bar{Y}_1) + K \qquad (S \geq 0)$$

Prices and Rents

$$(11)' \qquad P_{h1}^d = (1-a)\bar{P}_h^s$$

$$(12)' \quad P_{hi}^{d} = \bar{P}_{h}^{s} \qquad (i=2,3,4,5)$$

$$(13)' \quad R_{i} = \bar{P}_{h}^{s} h_{i}^{d} \qquad (i=1,2,3,4,5)$$

Incomes

$$(14)' \quad Y_{1} = (1-a\bar{b}-\tau_{1})\bar{Y}_{1} + K$$

$$(15)' \quad Y_{i} = (1-\tau_{i})\bar{Y}_{i} \qquad (i=2,3,4,5)$$

Tenure and Shelter Allowance Program Participation

$$(21)' \quad N_{1} = \hat{\pi}\,\bar{N}_{2} + \hat{\theta}\,\bar{N}_{4}$$

$$(22)' \quad N_{2} = (1-\hat{\pi})\bar{N}_{2}$$

$$(23)' \quad N_{3} = \bar{N}_{3}$$

$$(24)' \quad N_{4} = (1-\hat{\theta})\bar{N}_{4}$$

$$(25)' \quad N_{5} = \bar{N}_{5}$$

$$(26)' \quad \frac{\hat{\pi}}{1-\hat{\pi}} = \sigma_{0} + \sigma_{1}(S/Y_{2}-\sigma_{2}) \qquad (S>0)$$

$$(27)' \quad \frac{\hat{\theta}}{1-\hat{\theta}} = \varepsilon_{0} + \varepsilon_{1}(S/Y_{4}-\varepsilon_{2}) \qquad (S>0)$$

Government Budget

$$(28)' \qquad C = N_1 S$$

$$(29)' \qquad T = C$$

$$(30)' \qquad T = \sum_{i=1}^{5} \tau_i \bar{Y}_i$$

$$(31)' \qquad \tau_i = \bar{\tau}_i \frac{T}{\sum_{i=1}^{5} \bar{\tau}_i \bar{Y}_i N_i} \qquad (i=1,2,3,4,5)$$

Initial Population of Households

$$(32)' \qquad \bar{N}_i = \lambda_i \bar{N} \qquad (i=2,3,4,5)$$

DEFINITIONS OF SYMBOLS

Greek Symbols

α_j -- parameter of housing demand function (j=0,1,2)

β -- parameter of housing supply function

γ -- adjustment parameter in short-run vacancy rate function

δ_j -- parameter of long-run vacancy rate function (j=0,1)

ε_j -- parameter of long-run shelter allowance program participation function for eligible home owners (j=0,1,2)

η_i -- share of housing market excess profits going to household category i, after tax (i=1,2,3,4,5)

θ -- shelter allowance program participation rate for eligible home owners

$\hat{\theta}$ -- desired level of θ

λ_i -- proportion of households in category i when shelter allowance program is not in effect (i=2,3,4,5)

ξ -- adjustment parameter in short-run participation function for renters

π -- shelter allowance program participation rate for eligible renters

$\hat{\pi}$ -- desired level of π

ρ -- housing market vacancy rate

$\hat{\rho}$ -- conditional equilibrium level of ρ

$\bar{\rho}$ -- long-run equilibrium level of ρ

σ_j -- parameter of long-run shelter allowance program participation function for eligible renters (j=0,1,2)

τ_i -- special rate of income tax levied on household category i to finance shelter allowance program (i=1,2,3,4,5)

$\bar{\tau}_i$ -- long-run equilibrium level of τ_i (i=1,2,3,4,5)

$\bar{\tau}_0$ -- general rate of income tax applicable to housing market excess profits

ϕ -- adjustment parameter in short-run participation function for home owners

Latin Symbols

a -- parameter of shelter allowance formula

b -- parameter of shelter allowance formula

allowance formula

C -- total cost to government of shelter allowance program

G^d -- aggregate demand for non-housing goods

g^d -- individual household demand for non-housing goods

H^d -- aggregate demand for housing services

H^s -- aggregate supply of housing services

h^d -- individual household demand for housing services

i -- subscript indicating category of household by tenure, eligibility for shelter allowance, and program participation or non-participation (i=1 for participating renters; i=2 for eligible but non-participating renters; i=3 for ineligible renters; i=4 for eligible home owners; i=5 for ineligible home owners)

K -- cash transfer parameter in shelter allowance formula

N_i -- number of households in category i when shelter allowance program is in effect

$\bar{N}_i$ -- number of households in category i when shelter allowance program is not in effect

$\bar{N}$ -- total number of households

$\bar{P}_g$ -- price of non-housing goods

P_h^d -- demand price of housing services

P_h^s -- supply price of housing services

$\bar{P}_h^s$ -- long-run equilibrium level of P_h^s

R -- individual household rent

S -- individual household shelter allowance

T -- aggregate taxes available to finance shelter allowance program

t -- subscript indicating time (month)

X -- aggregate excess profits (losses) in housing market resulting from introduction of shelter allowance program

X' -- aggregate level of X after tax

X'_i -- amount of X' received by a household in category i

Y -- individual household disposable income after shelter allowance program introduced

$\bar{Y}$ -- individual household disposable income before shelter allowance program introduced (referred to as "base income")

EXPERIMENT: G1

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: STANDARD GAP FORMULA EXPERIMENT

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	158.4	158.8	162.1	164.4	165.2
HD(2)	INDEX	100.0	99.1	95.9	96.1	98.1	99.5	100.0
GD(1)	INDEX	100.0	103.5	102.4	102.5	103.1	103.6	103.7
GD(2)	INDEX	100.0	99.4	96.9	97.1	98.6	99.6	100.0
HDTOT	INDEX	100.0	100.0	101.1	102.4	104.6	105.8	106.2
GDTOT	INDEX	100.0	99.3	96.3	95.8	96.0	96.3	96.4
HS	INDEX	100.0	100.0	100.7	101.8	104.2	105.6	106.2
PHS	INDEX	100.0	101.7	108.9	108.2	103.9	101.0	100.0
RHO	PERCENT	3.0	3.0	2.5	2.4	2.6	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.4	72.2	70.7	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.8	43.7	42.8	42.2	42.0
S/YB(1)	PERCENT	0.0	30.0	31.8	31.6	30.5	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.5	40.5	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.3	2.8	3.4	3.5	3.5	3.4
TS/T	PERCENT	NA	74.8	81.1	84.7	92.6	98.0	100.0
TX/T	PERCENT	NA	25.2	18.9	15.3	7.4	2.0	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G2

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: HIGHER INCOME ELASTICITY OF HOUSING DEMAND (α_1=1.0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	154.0	151.2	151.5	153.5	154.6	155.0
HO(2)	INDEX	100.0	99.4	97.5	97.8	99.0	99.8	100.0
GO(1)	INDEX	100.0	105.4	104.8	104.9	105.3	105.5	105.6
GO(2)	INDEX	100.0	99.5	98.2	98.3	99.3	99.8	100.0
HOTOT	INDEX	100.0	100.0	100.7	101.5	102.6	103.2	103.3
GOTOT	INDEX	100.0	99.4	97.1	96.9	97.2	97.5	97.6
HS	INDEX	100.0	100.0	100.5	101.1	102.4	103.1	103.3
PHS	INDEX	100.0	101.3	105.1	104.6	102.0	100.5	100.0
RHO	PERCENT	3.0	3.0	2.3	2.6	2.8	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	65.5	66.7	66.6	65.8	65.3	65.1
R(2)/YB(2)	PERCENT	42.0	42.3	43.1	43.0	42.4	42.1	42.0
S/YB(1)	PERCENT	0.0	26.6	27.6	27.4	26.8	26.4	26.3
(R(1)-S)/YB(1)	PERCENT	42.0	38.9	39.2	39.1	38.9	38.8	38.8
C/YTOT	PERCENT	0.0	.3	2.4	3.0	3.1	3.1	3.1
TS/T	PERCENT	NA	77.4	86.4	89.5	95.4	98.9	100.0
TX/T	PERCENT	NA	22.5	13.5	10.5	4.6	1.1	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G3

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: LOWER INCOME ELASTICITY OF HOUSING DEMAND (α_1=.5)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	174.1	165.5	166.0	170.9	174.6	176.1
HO(2)	INDEX	100.0	98.9	94.1	94.3	97.1	99.1	100.0
GO(1)	INDEX	100.0	101.4	99.7	99.8	100.8	101.5	101.7
GO(2)	INDEX	100.0	99.2	95.4	95.6	97.8	99.4	100.0
HOTOT	INDEX	100.0	100.0	101.5	103.5	106.9	108.9	109.8
GOTOT	INDEX	100.0	99.3	95.7	95.0	95.1	95.3	95.4
HS	INDEX	100.0	100.0	101.1	102.7	106.3	108.7	109.8
PHS	INDEX	100.0	102.3	113.0	112.5	106.1	101.7	100.0
RHO	PERCENT	3.0	3.0	2.5	2.2	2.4	2.8	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	74.9	78.6	78.4	76.2	74.6	73.9
R(2)/YB(2)	PERCENT	42.0	42.5	44.7	44.6	43.3	42.4	42.0
S/YB(1)	PERCENT	0.0	33.6	36.5	36.3	34.6	33.4	33.0
(R(1)-S)/YB(1)	PERCENT	42.0	41.2	42.2	42.1	41.5	41.1	41.0
C/YTOT	PERCENT	0.0	.4	3.2	3.9	4.0	3.9	3.8
TS/T	PERCENT	NA	72.1	76.8	80.7	90.1	97.0	100.0
TX/T	PERCENT	NA	27.9	23.2	19.3	9.9	3.0	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G4

SHELTER ALLOWANCE FORMULA: $S = .75(R(1)-.30YB(1))$

SPECIAL FEATURES: HIGHER PRICE ELASTICITY OF HOUSING DEMAND (α_2=-.75)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	229.5	212.3	212.1	220.0	228.1	233.6
HD(2)	INDEX	100.0	98.3	91.1	90.8	94.2	97.6	100.0
GD(1)	INDEX	100.0	91.1	90.3	89.9	90.5	91.0	91.3
GD(2)	INDEX	100.0	99.6	97.7	97.6	98.5	99.4	100.0
HDTOT	INDEX	100.0	100.0	101.6	103.6	107.8	111.2	113.5
GDTOT	INDEX	100.0	99.1	94.7	93.5	92.8	92.5	92.2
HS	INDEX	100.0	100.0	101.1	102.7	107.0	110.8	113.5
PHS	INDEX	100.0	102.4	113.3	113.8	108.4	103.3	100.0
RHO	PERCENT	3.0	3.0	2.5	2.2	2.3	2.7	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	98.7	101.2	101.3	100.1	98.9	98.1
R(2)/YB(2)	PERCENT	42.0	42.2	43.3	43.4	42.9	42.3	42.0
S/YB(1)	PERCENT	0.0	51.5	53.4	53.5	52.6	51.7	51.1
(R(1)-S)/YB(1)	PERCENT	42.0	47.2	47.8	47.8	47.5	47.2	47.0
C/YTOT	PERCENT	0.0	.5	4.6	5.8	6.1	6.0	5.9
TS/T	PERCENT	NA	79.5	81.3	83.1	89.4	95.6	100.0
TX/T	PERCENT	NA	20.4	18.7	16.9	10.6	4.4	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G5

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: LOWER PRICE ELASTICITY OF HOUSING DEMAND (α_2=-.25)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	116.5	116.1	116.3	116.7	116.8	116.8
HO(2)	INDEX	100.0	99.8	99.4	99.6	99.9	100.0	100.0
GO(1)	INDEX	100.0	112.3	112.1	112.2	112.4	112.5	112.5
GO(2)	INDEX	100.0	99.5	98.7	99.1	99.8	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.4	100.7	101.0	101.0	101.0
GOTOT	INDEX	100.0	99.7	98.9	99.0	99.3	99.4	99.4
HS	INDEX	100.0	100.0	100.3	100.5	100.9	101.0	101.0
PHS	INDEX	100.0	100.9	102.4	101.7	100.4	100.0	100.0
RHO	PERCENT	3.0	3.0	2.9	2.8	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	49.4	49.9	49.7	49.2	49.1	49.1
R(2)/YB(2)	PERCENT	42.0	42.3	42.8	42.5	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	14.5	15.0	14.8	14.4	14.3	14.3
(R(1)-S)/YB(1)	PERCENT	42.0	34.8	35.0	34.9	34.8	34.8	34.8
C/YTOT	PERCENT	0.0	.2	1.3	1.6	1.7	1.7	1.7
TS/T	PERCENT	NA	73.5	89.8	94.0	98.5	99.8	100.0
TX/T	PERCENT	NA	26.5	10.2	6.0	1.5	.2	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G6

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: HIGHER SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.015)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	163.8	159.3	159.9	163.4	165.0	165.2
HO(2)	INDEX	100.0	99.1	96.2	96.8	98.9	99.9	100.0
GO(1)	INDEX	100.0	103.5	102.5	102.7	103.4	103.7	103.7
GO(2)	INDEX	100.0	99.4	97.2	97.6	99.2	99.9	100.0
HOTOT	INDEX	100.0	100.0	101.4	103.0	105.3	106.1	106.2
GOTOT	INDEX	100.0	99.3	96.4	95.9	96.2	96.4	96.4
HS	INDEX	100.0	100.0	101.1	102.5	105.0	106.0	106.2
PHS	INDEX	100.0	101.7	108.0	106.7	102.2	100.3	100.0
RHO	PERCENT	3.0	3.0	2.5	2.5	2.7	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.3	72.1	71.7	70.1	69.5	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.5	43.4	42.5	42.1	42.0
S/YB(1)	PERCENT	0.0	30.3	31.6	31.3	30.1	29.6	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.3	40.5	40.4	40.0	39.9	39.8
C/YTOT	PERCENT	0.0	.3	2.7	3.4	3.5	3.4	3.4
TS/T	PERCENT	NA	74.8	82.6	87.2	95.7	99.4	100.0
TX/T	PERCENT	NA	25.2	17.4	12.8	4.3	.6	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G7

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: LOWER SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.005)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	157.8	157.4	159.7	162.3	165.2
HD(2)	INDEX	100.0	99.1	95.5	95.3	96.6	98.3	100.0
GD(1)	INDEX	100.0	103.5	102.3	102.2	102.7	103.2	103.7
GD(2)	INDEX	100.0	99.4	96.5	96.4	97.5	98.7	100.0
HDTOT	INDEX	100.0	100.0	100.8	101.7	103.3	104.7	106.2
GDTOT	INDEX	100.0	99.3	96.2	95.6	95.7	96.1	96.4
HS	INDEX	100.0	100.0	100.4	101.0	102.7	104.4	106.2
PHS	INDEX	100.0	101.7	109.6	110.2	107.1	103.6	100.0
RHO	PERCENT	3.0	3.0	2.5	2.4	2.4	2.7	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.5	72.8	71.8	70.6	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	44.0	44.1	43.5	42.7	42.0
S/YB(1)	PERCENT	0.0	30.0	32.0	32.1	31.3	30.5	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.7	40.7	40.4	40.2	39.8
C/YTOT	PERCENT	0.0	.3	2.3	3.5	3.6	3.5	3.4
TS/T	PERCENT	NA	74.8	79.5	81.7	87.3	93.3	100.0
TX/T	PERCENT	NA	25.2	20.5	18.3	12.7	6.7	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G8

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: VERY LOW SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.001)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	163.8	157.2	156.0	156.3	157.4	165.2
HO(2)	INDEX	100.0	99.1	95.2	94.5	94.6	95.3	100.0
GO(1)	INDEX	100.0	103.5	102.2	102.0	102.0	102.2	103.7
GO(2)	INDEX	100.0	99.4	96.3	95.7	95.9	96.4	100.0
HOTOT	INDEX	100.0	100.0	100.5	100.9	101.5	102.1	106.2
GOTOT	INDEX	100.0	99.3	96.1	95.3	95.2	95.4	96.4
HS	INDEX	100.0	100.0	100.1	100.2	100.7	101.3	106.2
PHS	INDEX	100.0	101.7	110.4	112.1	111.6	110.1	100.0
RHO	PERCENT	3.0	3.0	2.6	2.3	2.2	2.3	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.9	73.5	73.3	72.8	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	44.1	44.5	44.4	44.1	42.0
S/YB(1)	PERCENT	0.0	30.0	32.2	32.6	32.5	32.1	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.7	40.9	40.8	40.7	39.8
C/YTOT	PERCENT	0.0	.3	2.3	3.5	3.8	3.7	3.4
TS/T	PERCENT	NA	74.8	78.1	78.8	80.4	82.7	100.0
TX/T	PERCENT	NA	25.2	21.9	21.2	19.6	17.3	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G9

SHELTER ALLOWANCE FORMULA: $S = .75(R(1)-.30YB(1))$

SPECIAL FEATURES: HOUSING SUPPLY PERFECTLY INELASTIC ($\beta=0$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	157.1	155.7	155.2	155.2	155.2
HD(2)	INDEX	100.0	99.1	95.1	94.2	94.0	94.0	94.0
GD(1)	INDEX	100.0	103.5	102.2	101.9	101.8	101.8	101.8
GD(2)	INDEX	100.0	99.4	96.3	95.6	95.4	95.4	95.4
HDTOT	INDEX	100.0	100.0	100.4	100.7	100.9	100.9	100.9
GDTOT	INDEX	100.0	99.3	96.0	95.3	95.0	95.0	95.0
HS	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHS	INDEX	100.0	101.7	110.5	112.6	113.2	113.2	113.2
RHO	PERCENT	3.0	3.0	2.5	2.3	2.1	2.1	2.1
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	73.0	73.6	73.8	73.8	73.8
R(2)/YB(2)	PERCENT	42.0	42.4	44.2	44.6	44.7	44.7	44.7
S/YB(1)	PERCENT	0.0	30.0	32.2	32.7	32.9	32.9	32.9
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.7	40.9	41.0	41.0	41.0
C/YTOT	PERCENT	0.0	.3	2.8	3.5	3.8	3.8	3.8
TS/T	PERCENT	NA	74.8	77.8	78.0	78.2	78.2	78.2
TX/T	PERCENT	NA	25.2	22.2	22.0	21.8	21.8	21.8

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G10

SHELTER ALLOWANCE FORMULA: $S = .75(R(1)-.30YB(1))$

SPECIAL FEATURES: HIGHER LONG-RUN VACANCY RATE ($\bar{\rho}=.05$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	158.8	159.3	162.3	164.4	165.2
HD(2)	INDEX	100.0	99.1	96.1	96.4	98.2	99.5	100.0
GD(1)	INDEX	100.0	103.5	102.5	102.6	103.2	103.6	103.7
GD(2)	INDEX	100.0	99.4	97.1	97.3	98.7	99.6	100.0
HDTOT	INDEX	100.0	100.0	101.4	102.7	104.7	105.8	106.2
GDTOT	INDEX	100.0	99.3	96.4	95.9	96.1	96.3	96.4
HS	INDEX	100.0	100.0	100.7	101.8	104.1	105.6	106.2
PHS	INDEX	100.0	101.7	108.2	107.6	103.6	101.0	100.0
RHO	PERCENT	5.0	5.0	4.4	4.1	4.4	4.8	5.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.2	72.0	70.6	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.7	43.6	42.8	42.2	42.0
S/YB(1)	PERCENT	0.0	30.0	31.6	31.5	30.5	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.5	40.5	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.3	2.7	3.4	3.5	3.5	3.4
TS/T	PERCENT	NA	74.8	81.5	85.2	92.7	97.9	100.0
TX/T	PERCENT	NA	25.2	18.4	14.8	7.3	2.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G11

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: LOWER LONG-RUN VACANCY RATE ($\bar{\rho}$=.01)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	158.3	158.2	161.9	164.4	165.2
HD(2)	INDEX	100.0	99.1	95.6	95.8	98.0	99.5	100.0
GD(1)	INDEX	100.0	103.5	102.3	102.4	103.1	103.6	103.7
GD(2)	INDEX	100.0	99.4	96.7	96.8	98.5	99.6	100.0
HDTDT	INDEX	100.0	100.3	100.9	102.1	104.4	105.8	106.2
GDTDT	INDEX	100.0	99.3	96.1	95.6	96.0	96.3	96.4
HS	INDEX	100.0	100.3	100.9	101.9	104.3	105.7	106.2
PHS	INDEX	100.0	101.7	109.3	109.0	104.2	101.0	100.0
RHO	PERCENT	1.0	1.3	.9	.8	.9	1.0	1.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.3	72.5	72.4	70.8	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.7	43.8	42.9	42.2	42.0
S/YB(1)	PERCENT	0.0	30.3	31.9	31.8	30.6	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.3	40.6	40.6	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.3	2.3	3.4	3.6	3.5	3.4
TS/T	PERCENT	NA	74.8	80.5	84.2	92.6	98.2	100.0
TX/T	PERCENT	NA	25.2	19.4	15.8	7.4	1.8	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G12

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: GREATER PRICE SENSITIVITY OF VACANCY RATE (δ_1=-6)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	158.9	159.4	162.4	164.4	165.2
HD(2)	INDEX	100.0	99.1	96.2	96.5	98.3	99.5	100.0
GD(1)	INDEX	100.0	103.5	102.5	102.6	103.2	103.6	103.7
GD(2)	INDEX	100.0	99.4	97.1	97.4	98.7	99.6	100.0
HDTOT	INDEX	100.0	100.0	101.4	102.8	104.7	105.8	106.2
GDTOT	INDEX	100.0	99.3	96.4	95.9	96.1	96.3	96.4
HS	INDEX	100.0	100.0	100.7	101.8	104.0	105.5	106.2
PHS	INDEX	100.0	101.7	108.1	107.5	103.5	101.0	100.0
R(1)	PERCENT	3.0	3.0	2.3	2.0	2.3	2.8	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.2	71.9	70.6	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.7	43.5	42.7	42.2	42.0
S/YB(1)	PERCENT	0.0	30.0	31.5	31.4	30.4	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.5	40.5	40.1	39.9	39.8
C/CTOT	PERCENT	0.0	.3	2.7	3.4	3.5	3.5	3.4
TS/T	PERCENT	NA	74.8	81.7	85.3	92.7	97.8	100.0
TX/T	PERCENT	NA	25.2	18.3	14.7	7.3	2.2	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G13

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: VACANCY RATE INSENSITIVE TO PRICE (δ_1=0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	157.8	157.9	161.7	164.4	165.2
HD(2)	INDEX	100.0	99.1	95.5	95.6	97.9	99.5	100.0
GD(1)	INDEX	100.0	103.5	102.3	102.3	103.1	103.6	103.7
GD(2)	INDEX	100.0	99.4	96.5	96.7	98.5	99.6	100.0
HDTDT	INDEX	100.0	100.0	100.3	101.9	104.3	105.8	106.2
GDTDT	INDEX	100.0	99.3	96.1	95.5	95.9	96.3	96.4
HS	INDEX	100.0	100.0	100.3	101.9	104.3	105.8	106.2
PHS	INDEX	100.0	101.7	109.5	109.4	104.3	101.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.6	72.6	70.9	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	44.0	43.9	42.9	42.2	42.0
S/Y3(1)	PERCENT	0.0	30.0	32.0	31.9	30.6	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.7	40.6	40.2	39.9	39.8
C/YTDT	PERCENT	0.0	.3	2.8	3.4	3.6	3.5	3.4
TS/T	PERCENT	NA	74.8	80.4	83.9	92.6	98.2	100.0
TX/T	PERCENT	NA	25.2	19.6	16.1	7.4	1.8	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G14

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: FASTER ADJUSTMENT OF VACANCY AND PARTICIPATION RATES ($\gamma=\xi=\phi=.15$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.1	157.5	158.8	162.3	164.4	165.2
HD(2)	INDEX	100.0	98.7	95.4	96.1	98.2	99.5	100.0
GD(1)	INDEX	100.0	103.3	102.3	102.5	103.2	103.6	103.7
GD(2)	INDEX	100.0	99.1	96.5	97.1	98.7	99.7	100.0
HDTDT	INDEX	100.0	100.0	101.5	102.8	104.7	105.8	106.2
GDTDT	INDEX	100.0	99.3	95.7	95.6	96.1	96.3	96.4
HS	INDEX	100.0	100.0	100.9	102.1	104.3	105.7	106.2
PHS	INDEX	100.0	102.5	109.9	108.2	103.6	100.9	100.0
RHO	PERCENT	3.0	3.0	2.4	2.4	2.7	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	2.9	17.3	19.0	19.4	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.3	72.7	72.2	70.6	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.5	44.3	43.7	42.7	42.2	42.0
S/YB(1)	PERCENT	0.0	30.2	32.3	31.6	30.5	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.1	40.7	40.5	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.3	3.3	3.5	3.5	3.5	3.4
TS/T	PERCENT	NA	74.7	81.5	85.4	93.2	98.2	100.0
TX/T	PERCENT	NA	25.3	18.5	14.6	6.8	1.8	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G15

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: SLOWER ADJUSTMENT OF VACANCY AND PARTICIPATION RATES ($\gamma=\xi=\phi=.05$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	164.5	160.4	159.6	161.6	164.1	165.2
HO(2)	INDEX	100.0	99.6	97.1	96.6	97.8	99.4	100.0
GO(1)	INDEX	100.0	103.6	102.8	102.7	103.0	103.5	103.7
GO(2)	INDEX	100.0	99.7	97.3	97.5	98.4	99.5	100.0
HOTOT	INDEX	100.0	100.0	100.6	101.6	104.1	105.6	106.2
GOTOT	INDEX	100.0	99.7	97.5	96.6	96.1	96.3	96.4
HS	INDEX	100.0	100.0	100.4	101.3	103.6	105.4	106.2
PHS	INDEX	100.0	100.9	106.1	107.1	104.5	101.3	100.0
RHO	PERCENT	3.0	3.0	2.9	2.7	2.6	2.8	3.0
N(1)/NBTOT	PERCENT	0.0	1.0	9.4	14.0	18.5	19.3	19.4
R(1)/YB(1)	PERCENT	42.0	69.7	71.5	71.8	70.9	69.8	69.4
R(2)/YB(2)	PERCENT	42.0	42.2	43.3	43.5	42.9	42.3	42.0
S/YB(1)	PERCENT	0.0	29.8	31.1	31.4	30.7	29.9	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	39.9	40.4	40.5	40.2	40.0	39.8
C/YTOT	PERCENT	0.0	.2	1.3	2.6	3.4	3.5	3.4
TS/T	PERCENT	NA	74.9	80.8	83.9	91.2	97.3	100.0
TX/T	PERCENT	NA	25.1	19.2	16.1	8.8	2.7	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G16

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: HOME-OWNER PARTICIPATION SENSITIVE TO BENEFIT LEVEL (ε_1=.5)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	163.7	158.2	158.6	162.0	164.4	165.2
HO(2)	INDEX	100.0	99.1	95.3	96.0	98.1	99.5	100.0
GO(1)	INDEX	100.0	103.4	102.4	102.5	103.1	103.6	103.7
GO(2)	INDEX	100.0	99.3	96.3	97.0	98.6	99.6	100.0
HOTOT	INDEX	100.0	100.0	101.2	102.5	104.7	105.9	106.3
GOTOT	INDEX	100.0	99.3	96.2	95.7	95.9	96.2	96.3
HS	INDEX	100.0	100.0	100.3	101.9	104.3	105.8	106.3
PHS	INDEX	100.0	101.8	109.0	108.5	104.0	101.0	100.0
RHO	PERCENT	3.0	3.0	2.6	2.4	2.6	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	2.0	14.9	18.5	19.9	19.9	19.9
R(1)/YB(1)	PERCENT	42.0	70.0	72.5	72.3	70.7	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.9	43.7	42.8	42.2	42.0
S/YB(1)	PERCENT	0.0	30.0	31.8	31.7	30.6	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.5	40.6	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.4	2.8	3.5	3.6	3.6	3.5
TS/T	PERCENT	NA	74.7	80.9	84.5	92.6	98.0	100.0
TX/T	PERCENT	NA	25.3	19.1	15.5	7.4	2.0	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G17

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: HOME-OWNER PARTICIPATION VERY SENSITIVE TO BENEFIT LEVEL (ϵ_1=1.0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	163.7	158.0	158.4	162.0	164.3	165.2
HO(2)	INDEX	100.0	99.1	95.7	95.9	98.0	99.5	100.0
GO(1)	INDEX	100.0	103.4	102.4	102.4	103.1	103.6	103.7
GO(2)	INDEX	100.0	99.3	96.7	96.9	98.5	99.6	100.0
HOTOT	INDEX	100.0	100.0	101.2	102.6	104.8	106.1	106.5
GOTOT	INDEX	100.0	99.3	96.1	95.6	95.9	96.1	96.2
HS	INDEX	100.0	100.0	100.3	101.9	104.4	105.9	106.5
P4S	INDEX	100.0	101.9	109.3	108.7	104.1	101.0	100.0
RHO	PERCENT	3.0	3.0	2.6	2.4	2.6	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	2.1	15.2	18.9	20.3	20.3	20.3
R(1)/YB(1)	PERCENT	42.0	70.0	72.5	72.3	70.8	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.9	43.8	42.8	42.2	42.0
S/YB(1)	PERCENT	0.0	30.0	31.9	31.8	30.6	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.5	40.6	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.4	2.9	3.6	3.7	3.6	3.6
TS/T	PERCENT	NA	74.7	80.3	84.4	92.5	98.0	100.0
TX/T	PERCENT	NA	25.3	19.2	15.6	7.5	2.0	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G1B

SHELTER ALLOWANCE FORMULA: $S = .75(R(1)-.30YB(1))$

SPECIAL FEATURES: HIGHER TAX ON EXCESS PROFITS ($\bar{\tau}_0=.6$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	158.4	158.8	162.1	164.4	165.2
HD(2)	INDEX	100.0	99.1	95.9	96.1	98.1	99.5	100.0
GD(1)	INDEX	100.0	103.5	102.4	102.5	103.1	103.6	103.7
GD(2)	INDEX	100.0	99.4	96.9	97.1	98.6	99.6	100.0
HDTOT	INDEX	100.0	100.0	101.1	102.4	104.6	105.8	106.2
GDTOT	INDEX	100.0	99.3	96.3	95.8	96.0	96.3	96.4
HS	INDEX	100.0	100.0	100.7	101.8	104.2	105.6	106.2
PHS	INDEX	100.0	101.7	108.8	108.2	103.9	101.0	100.0
RHO	PERCENT	3.0	3.0	2.6	2.4	2.6	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.4	72.2	70.7	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.8	43.7	42.8	42.2	42.0
S/YB(1)	PERCENT	0.0	30.0	31.8	31.6	30.5	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.6	40.5	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.3	2.8	3.4	3.5	3.5	3.4
TS/T	PERCENT	NA	62.2	71.7	77.1	89.0	97.0	100.0
TX/T	PERCENT	NA	37.8	28.3	22.9	11.0	3.0	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G19

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: LOWER TAX ON EXCESS PROFITS ($\bar{\tau}_0$=.2)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	163.8	158.4	158.8	162.1	164.4	165.2
HD(2)	INDEX	100.0	99.1	95.9	96.1	98.1	99.5	100.0
GD(1)	INDEX	100.0	103.5	102.4	102.5	103.1	103.6	103.7
GD(2)	INDEX	100.0	99.4	96.9	97.1	98.6	99.6	100.0
HDTOT	INDEX	100.0	100.0	101.1	102.4	104.6	105.8	106.2
GDTOT	INDEX	100.0	99.3	96.3	95.8	96.0	96.3	96.4
HS	INDEX	100.0	100.0	100.7	101.8	104.2	105.6	106.2
PHS	INDEX	100.0	101.7	108.8	108.2	103.9	101.0	100.0
RHO	PERCENT	3.0	3.0	2.5	2.4	2.6	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	70.0	72.4	72.2	70.7	69.7	69.4
R(2)/YB(2)	PERCENT	42.0	42.4	43.3	43.7	42.8	42.2	42.0
S/YB(1)	PERCENT	0.0	30.0	31.8	31.6	30.5	29.8	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.5	40.5	40.2	39.9	39.8
C/YTOT	PERCENT	0.0	.3	2.8	3.4	3.5	3.5	3.4
TS/T	PERCENT	NA	87.4	90.6	92.4	96.3	99.0	100.0
TX/T	PERCENT	NA	12.5	9.4	7.6	3.7	1.0	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G20

SHELTER ALLOWANCE FORMULA: S = .75(R(1)-.30YB(1))

SPECIAL FEATURES: SMALLER POPULATION ELIGIBLE FOR ALLOWANCE (λ_2=.2,λ_4=.05)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	164.2	160.3	160.6	162.9	164.6	165.2
HO(2)	INDEX	100.0	99.4	97.1	97.2	98.6	99.6	100.0
GO(1)	INDEX	100.0	103.5	102.4	102.9	103.3	103.6	103.7
GO(2)	INDEX	100.0	99.5	97.8	97.9	99.0	99.7	100.0
HOTOT	INDEX	100.0	100.0	100.8	101.7	103.3	104.1	104.5
GOTOT	INDEX	100.0	99.5	97.2	96.9	97.1	97.4	97.5
HS	INDEX	100.0	100.0	100.5	101.3	103.0	104.0	104.5
PHS	INDEX	100.0	101.3	106.2	105.8	102.8	100.8	100.0
RHO	PERCENT	3.0	3.0	2.7	2.6	2.7	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.5	10.8	13.5	14.5	14.5	14.5
R(1)/YB(1)	PERCENT	42.0	69.8	71.5	71.4	70.3	69.6	69.4
R(2)/YB(2)	PERCENT	42.0	42.3	43.3	43.2	42.6	42.2	42.0
S/YB(1)	PERCENT	0.0	29.9	31.1	31.0	30.3	29.7	29.5
(R(1)-S)/YB(1)	PERCENT	42.0	40.0	40.4	40.3	40.1	39.9	39.8
C/YTOT	PERCENT	0.0	.2	1.9	2.4	2.5	2.5	2.4
TS/T	PERCENT	NA	77.5	83.5	86.8	93.6	98.2	100.0
TX/T	PERCENT	NA	22.4	16.4	13.2	6.4	1.8	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G2L

SHELTER ALLOWANCE FORMULA: S = .6(R(1)-.30YB(1))

SPECIAL FEATURES: FORMULA PARAMETER a REDUCED (a=.6)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	135.5	133.1	133.3	134.8	135.9	136.2
HO(2)	INDEX	100.0	99.5	97.7	97.8	98.9	99.7	100.0
GO(1)	INDEX	100.0	101.7	101.0	101.0	101.5	101.8	101.9
GO(2)	INDEX	100.0	99.7	98.3	98.4	99.2	99.8	100.0
HOTOT	INDEX	100.0	100.0	100.6	101.4	102.6	103.2	103.5
GOTOT	INDEX	100.0	99.6	97.9	97.6	97.8	97.9	98.0
HS	INDEX	100.0	100.0	100.4	101.0	102.3	103.1	103.5
PHS	INDEX	100.0	101.3	104.8	104.5	102.2	100.6	100.0
RHO	PERCENT	3.0	3.0	2.8	2.7	2.8	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	57.5	58.6	58.5	57.8	57.4	57.2
R(2)/YB(2)	PERCENT	42.0	42.2	43.0	42.9	42.5	42.1	42.0
S/YB(1)	PERCENT	0.0	16.5	17.2	17.1	16.7	16.4	16.3
(R(1)-S)/YB(1)	PERCENT	42.0	41.0	41.4	41.4	41.1	41.0	40.9
C/YTOT	PERCENT	0.0	.2	1.5	1.8	1.9	1.9	1.9
TS/T	PERCENT	NA	74.8	81.7	85.4	93.0	98.1	100.0
TX/T	PERCENT	NA	25.2	18.3	14.6	7.0	1.9	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G22

SHELTER ALLOWANCE FORMULA: S = .9(R(1)-.30YB(1))

SPECIAL FEATURES: FORMULA PARAMETER a INCREASED (a=.9)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	244.9	227.1	228.4	239.5	247.1	249.7
HO(2)	INDEX	100.0	98.0	90.9	91.4	95.9	98.9	100.0
GO(1)	INDEX	100.0	107.4	106.0	106.1	107.0	107.6	107.8
GO(2)	INDEX	100.0	98.5	92.8	93.2	96.9	99.2	100.0
HOTOT	INDEX	100.0	100.0	102.5	105.4	110.4	113.2	114.2
GOTOT	INDEX	100.0	98.5	91.7	90.7	91.2	91.6	91.8
HS	INDEX	100.0	100.0	102.7	104.2	109.5	113.0	114.2
PHS	INDEX	100.0	104.0	111.0	119.6	108.8	102.2	100.0
RHO	PERCENT	3.0	3.0	2.2	1.9	2.2	2.8	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	107.0	115.4	114.7	109.4	106.0	104.9
R(2)/YB(2)	PERCENT	42.0	42.8	46.2	45.9	43.8	42.5	42.0
S/YB(1)	PERCENT	0.0	69.3	76.8	76.2	71.5	68.4	67.4
(R(1)-S)/YB(1)	PERCENT	42.0	37.7	38.5	38.5	37.9	37.6	37.5
C/YTOT	PERCENT	0.0	.8	6.7	8.2	8.3	8.0	7.8
TS/T	PERCENT	NA	74.3	78.9	82.4	91.4	97.6	100.0
TX/T	PERCENT	NA	25.7	21.1	17.6	8.6	2.4	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G23

SHELTER ALLOWANCE FORMULA: S = .6(R(1)-.27YB(1))

SPECIAL FEATURES: FORMULA PARAMETERS a AND b REDUCED (a=.6,b=.27)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	137.8	135.2	135.4	137.0	138.1	138.5
HD(2)	INDEX	100.0	99.5	97.6	97.7	98.9	99.7	100.0
GD(1)	INDEX	100.0	104.2	103.4	103.4	103.9	104.3	104.4
GD(2)	INDEX	100.0	99.6	98.2	98.3	99.2	99.8	100.0
HDTOT	INDEX	100.0	100.0	100.7	101.4	102.6	103.3	103.5
GDTOT	INDEX	100.0	99.6	97.8	97.5	97.7	97.9	97.9
HS	INDEX	100.0	100.0	100.4	101.1	102.4	103.2	103.5
PHS	INDEX	100.0	101.0	105.0	104.7	102.2	100.6	100.0
RHO	PERCENT	3.0	3.0	2.8	2.7	2.8	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	58.6	59.6	59.5	58.8	58.3	58.2
R(2)/YB(2)	PERCENT	42.0	42.2	43.0	43.0	42.5	42.1	42.0
S/YB(1)	PERCENT	0.0	18.9	19.6	19.5	19.1	18.8	18.7
(R(1)-S)/YB(1)	PERCENT	42.0	39.6	40.0	40.0	39.7	39.5	39.5
C/YTOT	PERCENT	0.0	.2	1.7	2.1	2.2	2.2	2.2
TS/T	PERCENT	NA	76.6	83.4	86.7	93.7	98.3	100.0
TX/T	PERCENT	NA	23.4	16.6	13.3	6.3	1.7	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: G24

SHELTER ALLOWANCE FORMULA: S = .9(R(1)-.32YB(1))

SPECIAL FEATURES: FORMULA PARAMETERS a AND b INCREASED (a=.9,b=.32)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	240.5	223.3	224.6	235.2	242.5	245.1
HD(2)	INDEX	100.0	98.1	91.1	91.6	96.0	98.9	100.0
GD(1)	INDEX	100.0	104.7	103.3	103.4	104.3	104.8	105.0
GD(2)	INDEX	100.0	98.6	92.9	93.4	97.0	99.2	100.0
HDTOT	INDEX	100.0	100.3	102.4	105.2	110.2	112.9	113.9
GDTOT	INDEX	100.0	98.5	91.9	90.8	91.4	91.8	92.0
HS	INDEX	100.0	100.0	101.6	104.1	109.3	112.7	113.9
PHS	INDEX	100.0	103.9	120.4	119.1	108.6	102.2	100.0
RHO	PERCENT	3.0	3.0	2.3	1.9	2.2	2.8	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	104.9	113.0	112.4	107.3	104.0	102.9
R(2)/YB(2)	PERCENT	42.0	42.9	46.1	45.8	43.8	42.4	42.0
S/YB(1)	PERCENT	0.0	65.6	72.9	72.3	67.8	64.8	63.9
(R(1)-S)/YB(1)	PERCENT	42.0	39.3	40.1	40.0	39.5	39.2	39.1
C/YTOT	PERCENT	0.0	.8	6.3	7.8	7.9	7.5	7.4
TS/T	PERCENT	NA	73.7	78.4	82.0	91.2	97.6	100.0
TX/T	PERCENT	NA	26.3	21.5	18.0	8.8	2.4	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP1

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: STANDARD RENT PROPORTION FORMULA EXPERIMENT

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.1	112.2	112.5	112.7	112.8
HD(2)	INDEX	100.0	99.8	99.4	99.5	99.7	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.8	107.9	108.1	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.5	99.6	99.8	99.9	100.0
HDTOT	INDEX	100.0	100.3	100.2	100.4	100.6	100.8	100.9
GDTOT	INDEX	100.0	99.9	99.5	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.2	101.1	100.5	100.1	100.0
RHD	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	92.7	94.3	97.4	99.3	100.0
TX/T	PERCENT	NA	14.4	7.3	5.7	2.6	.7	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP2

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HIGHER INCOME ELASTICITY OF HOUSING DEMAND (α_1=1.0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.5	112.6	112.7	112.8	112.8
HD(2)	INDEX	100.0	99.9	99.8	99.8	99.9	100.0	100.0
GD(1)	INDEX	100.0	108.1	108.1	108.1	108.2	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.8	99.9	99.9	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.1	100.2	100.2	100.3	100.3
GDTOT	INDEX	100.0	99.9	99.7	99.7	99.7	99.8	99.8
HS	INDEX	100.0	100.0	100.1	100.1	100.2	100.3	100.3
PHS	INDEX	100.0	100.3	100.5	100.4	100.2	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.5	47.5	47.4	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.1	42.1	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.3	37.3	37.3	37.2	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	86.4	96.7	97.7	99.1	99.8	100.0
TX/T	PERCENT	NA	13.5	3.3	2.3	.9	.2	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP3

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: LOWER INCOME ELASTICITY OF HOUSING DEMAND (α_1=.5)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	111.8	111.8	112.3	112.7	112.8
HD(2)	INDEX	100.0	99.8	99.1	99.1	99.6	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.6	107.7	107.9	108.1	108.2
GD(2)	INDEX	100.0	99.9	99.3	99.4	99.7	99.9	100.0
HDTOT	INDEX	100.0	100.0	100.2	100.5	101.0	101.3	101.4
GDTOT	INDEX	100.0	99.9	99.4	99.3	99.3	99.3	99.3
HS	INDEX	100.0	100.0	100.2	100.4	100.9	101.3	101.4
PHS	INDEX	100.0	100.4	101.3	101.7	100.9	100.3	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.8	47.8	47.6	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.4	42.4	42.2	42.1	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.6	37.4	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	84.8	89.7	91.8	96.0	98.8	100.0
TX/T	PERCENT	NA	15.2	10.3	8.2	4.0	1.2	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP4

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HIGHER PRICE ELASTICITY OF HOUSING DEMAND (α_2=-.75)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	119.5	118.3	118.3	118.9	119.4	119.8
HD(2)	INDEX	100.0	99.7	98.3	98.7	99.2	99.7	100.0
GD(1)	INDEX	100.0	104.2	104.3	103.9	104.1	104.2	104.2
GD(2)	INDEX	100.0	99.9	99.7	99.7	99.8	99.9	100.0
HDTOT	INDEX	100.0	100.0	100.2	100.5	101.0	101.4	101.7
GDTOT	INDEX	100.0	99.9	99.3	99.1	99.0	99.0	99.0
HS	INDEX	100.0	100.0	100.1	100.4	100.9	101.4	101.7
PHS	INDEX	100.0	100.4	101.7	101.7	101.1	100.4	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	50.4	50.5	50.5	50.5	50.4	50.3
R(2)/YB(2)	PERCENT	42.0	42.0	42.2	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.8	10.3	10.8	10.8	10.8	10.8
(R(1)-S)/YB(1)	PERCENT	42.0	39.5	39.7	39.7	39.6	39.6	39.5
C/YTOT	PERCENT	0.0	.1	.9	1.2	1.3	1.3	1.3
TS/T	PERCENT	NA	86.3	90.3	91.6	94.9	97.9	100.0
TX/T	PERCENT	NA	14.0	9.7	8.4	5.1	2.1	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP5

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: LOWER PRICE ELASTICITY OF HOUSING DEMAND (α_2=-.25)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.1	106.2	106.2	106.2	106.2	106.2
HO(2)	INDEX	100.0	99.9	100.0	100.0	100.0	100.0	100.0
GO(1)	INDEX	100.0	111.8	112.0	112.0	112.0	112.0	112.0
GO(2)	INDEX	100.0	99.8	100.0	100.0	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GOTOT	INDEX	100.0	99.9	100.0	100.0	100.0	100.0	100.0
HS	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHS	INDEX	100.0	100.3	100.0	100.0	100.0	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.7	44.5	44.6	44.6	44.6	44.6
R(2)/YB(2)	PERCENT	42.0	42.1	42.0	42.0	42.0	42.0	42.0
S/Y3(1)	PERCENT	0.0	9.5	9.5	9.6	9.6	9.6	9.6
(R(1)-S)/YB(1)	PERCENT	42.0	35.1	35.1	35.0	35.0	35.1	35.1
C/YTOT	PERCENT	0.0	.1	.3	1.0	1.1	1.1	1.1
TS/T	PERCENT	NA	85.2	99.7	100.0	100.0	100.0	100.0
TX/T	PERCENT	NA	14.8	.3	-.0	-.0	-.0	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP6

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HIGHER SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.015)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.2	112.3	112.6	112.8	112.8
HD(2)	INDEX	100.0	99.8	99.5	99.6	99.9	100.0	100.0
GD(1)	INDEX	100.0	108.1	107.9	107.9	108.1	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.5	99.7	99.9	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.2	100.4	100.7	100.8	100.9
GDTOT	INDEX	100.0	99.9	99.5	99.4	99.5	99.5	99.5
HS	INDEX	100.0	100.0	100.2	100.4	100.7	100.8	100.9
PHS	INDEX	100.0	100.3	101.1	100.9	100.3	100.0	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.6	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.2	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.4	37.4	37.3	37.2	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	93.3	95.4	98.5	99.8	100.0
TX/T	PERCENT	NA	14.4	6.7	4.6	1.5	.2	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP7

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: LOWER SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.005)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	112.6	112.1	112.1	112.3	112.5	112.8
HO(2)	INDEX	100.0	99.8	99.3	99.3	99.5	99.8	100.0
GO(1)	INDEX	100.0	108.1	107.8	107.8	107.9	108.1	108.2
GO(2)	INDEX	100.0	99.9	99.5	99.5	99.7	99.8	100.0
HOTOT	INDEX	100.0	100.0	100.1	100.3	100.5	100.7	100.9
GOTOT	INDEX	100.0	99.9	99.4	99.4	99.4	99.4	99.5
HS	INDEX	100.0	100.0	100.1	100.1	100.4	100.6	100.9
PHS	INDEX	100.0	100.3	101.3	101.4	101.0	100.5	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.7	47.6	47.5	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.3	42.2	42.1	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.5	37.4	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	92.0	93.1	95.4	97.6	100.0
TX/T	PERCENT	NA	14.4	8.0	6.9	4.6	2.4	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP8

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: VERY LOW SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.001)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.5	112.0	111.9	112.0	112.1	112.8
HD(2)	INDEX	100.0	99.8	99.3	99.2	99.2	99.3	100.0
GD(1)	INDEX	100.0	108.1	107.8	107.7	107.7	107.8	108.2
GD(2)	INDEX	100.0	99.9	99.5	99.4	99.4	99.5	100.0
HDTOT	INDEX	100.0	100.0	100.1	100.1	100.2	100.3	100.9
GDTOT	INDEX	100.0	99.9	99.4	99.3	99.3	99.3	99.5
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.2	100.9
PHS	INDEX	100.0	100.3	101.4	101.6	101.5	101.4	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	2.9	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.8	47.7	47.7	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.3	42.3	42.3	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.5	37.5	37.5	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	91.4	91.9	92.6	93.5	100.0
TX/T	PERCENT	NA	14.4	8.6	8.1	7.4	6.5	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP9

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HOUSING SUPPLY PERFECTLY INELASTIC (β=0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.5	112.0	111.9	111.8	111.8	111.8
HD(2)	INDEX	100.0	99.8	99.3	99.2	99.1	99.1	99.1
GD(1)	INDEX	100.0	108.1	107.8	107.7	107.7	107.7	107.7
GD(2)	INDEX	100.0	99.9	99.5	99.4	99.4	99.4	99.4
HDTOT	INDEX	100.0	100.0	100.1	100.1	100.2	100.2	100.2
GDTOT	INDEX	100.0	99.9	99.4	99.3	99.3	99.3	99.3
HS	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHS	INDEX	100.0	100.3	101.4	101.7	101.7	101.7	101.7
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	2.9	2.9
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.8	47.8	47.8	47.8
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.4	42.4	42.4	42.4
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.5	37.6	37.6	37.6
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	91.2	91.5	91.7	91.7	91.7
TX/T	PERCENT	NA	14.4	8.9	8.5	8.3	8.3	8.3

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP10

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HIGHER LONG-RUN VACANCY RATE ($\bar{\rho}$=.05)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.2	112.2	112.5	112.7	112.8
HD(2)	INDEX	100.0	99.8	99.4	99.5	99.8	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.9	107.9	108.1	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.6	99.6	99.8	99.9	100.0
HDTOT	INDEX	100.0	100.0	100.2	100.4	100.7	100.8	100.9
GDTOT	INDEX	100.0	99.9	99.5	99.4	99.5	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.1	101.0	100.5	100.1	100.0
RHO	PERCENT	5.0	5.0	4.9	4.9	4.9	5.0	5.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.6	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.2	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.4	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.6	92.9	94.5	97.4	99.3	100.0
TX/T	PERCENT	NA	14.4	7.1	5.5	2.6	.7	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP11

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: LOWER LONG-RUN VACANCY RATE ($\bar{\rho}$=.01)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.1	112.1	112.5	112.7	112.8
HD(2)	INDEX	100.0	99.8	99.4	99.4	99.7	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.8	107.8	108.0	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.5	99.6	99.8	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
GDTOT	INDEX	100.0	99.9	99.4	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.3	101.2	100.6	100.1	100.0
RHO	PERCENT	1.0	1.0	1.0	1.0	1.0	1.0	1.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.7	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.3	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.5	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	92.4	94.1	97.4	99.4	100.0
TX/T	PERCENT	NA	14.4	7.6	5.9	2.6	.6	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP12

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: GREATER PRICE SENSITIVITY OF VACANCY RATE (δ_1=-6)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.2	112.3	112.5	112.7	112.8
HD(2)	INDEX	100.0	99.8	99.5	99.5	99.8	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.9	107.9	108.1	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.5	99.6	99.8	99.9	100.0
HDTOT	INDEX	100.0	100.0	100.2	100.4	100.7	100.8	100.9
GDTOT	INDEX	100.0	99.9	99.5	99.4	99.5	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.1	101.0	100.5	100.1	100.0
RHO	PERCENT	3.0	3.0	2.9	2.8	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.5	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.2	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.4	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	93.0	94.6	97.4	99.2	100.0
TX/T	PERCENT	NA	14.4	7.0	5.4	2.6	.8	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP13

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: VACANCY RATE INSENSITIVE TO PRICE (δ_1=0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.1	112.1	112.5	112.7	112.8
HD(2)	INDEX	100.0	99.8	99.3	99.4	99.7	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.8	107.8	108.0	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.5	99.5	99.8	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
GDTOT	INDEX	100.0	99.9	99.4	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.3	101.3	100.6	100.1	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.7	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.3	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.5	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	92.3	94.0	97.4	99.4	100.0
TX/T	PERCENT	NA	14.4	7.7	6.0	2.6	.6	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP14

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: FASTER ADJUSTMENT OF VACANCY AND PARTICIPATION RATES ($\gamma=\xi=\phi=.15$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.5	112.1	112.2	112.5	112.7	112.8
HD(2)	INDEX	100.0	99.7	99.3	99.5	99.8	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.8	107.9	108.1	108.2	108.2
GD(2)	INDEX	100.0	99.8	99.5	99.6	99.8	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.2	100.4	100.7	100.8	100.9
GDTOT	INDEX	100.0	99.8	99.4	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.5	101.3	101.1	100.5	100.1	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	2.9	17.0	19.0	19.4	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.2	1.0	1.2	1.2	1.2	1.2
TS/T	PERCENT	NA	85.6	93.0	94.6	97.6	99.4	100.0
TX/T	PERCENT	NA	14.4	7.0	5.4	2.4	.6	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP15

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: SLOWER ADJUSTMENT OF VACANCY AND PARTICIPATION RATES ($\gamma=\xi=\phi=.05$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	112.7	112.3	112.3	112.5	112.7	112.8
HO(2)	INDEX	100.0	99.9	99.5	99.5	99.7	99.9	100.0
GO(1)	INDEX	100.0	108.2	108.0	107.9	108.0	108.2	108.2
GO(2)	INDEX	100.0	99.9	99.7	99.6	99.8	99.9	100.0
HOTOT	INDEX	100.0	100.0	100.1	100.2	100.6	100.8	100.9
GOTOT	INDEX	100.0	99.9	99.5	99.5	99.5	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.2	100.5	100.8	100.9
PHS	INDEX	100.0	100.2	100.9	101.0	100.6	100.2	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.0	9.4	14.0	18.5	19.3	19.4
R(1)/YB(1)	PERCENT	42.0	47.4	47.6	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.0	42.2	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.4	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.5	.9	1.1	1.2	1.2
TS/T	PERCENT	NA	85.7	92.4	93.9	96.9	99.1	100.0
TX/T	PERCENT	NA	14.3	7.5	6.1	3.1	.9	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP16

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HOME-OWNER PARTICIPATION SENSITIVE TO BENEFIT LEVEL (ϵ_1=.5)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	112.6	112.1	112.2	112.5	112.7	112.8
HO(2)	INDEX	100.0	99.8	99.4	99.4	99.7	99.9	100.0
GO(1)	INDEX	100.0	108.1	107.8	107.9	108.1	108.2	108.2
GO(2)	INDEX	100.0	99.9	99.6	99.6	99.8	99.9	100.0
HOTOT	INDEX	100.0	100.0	100.2	100.4	100.6	100.8	100.9
GOTOT	INDEX	100.0	99.9	99.5	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.2	101.1	100.5	100.1	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.5	18.0	19.4	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	92.7	94.3	97.4	99.3	100.0
TX/T	PERCENT	NA	14.4	7.3	5.7	2.6	.7	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP17

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HOME-OWNER PARTICIPATION VERY SENSITIVE TO BENEFIT LEVEL (ε_1=1.0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	112.6	112.1	112.2	112.5	112.7	112.8
HO(2)	INDEX	100.0	99.8	99.4	99.4	99.7	99.9	100.0
GO(1)	INDEX	100.0	108.1	107.8	107.9	108.1	108.2	108.2
GO(2)	INDEX	100.0	99.9	99.5	99.6	99.8	99.9	100.0
HOTOT	INDEX	100.0	100.0	100.2	100.4	100.6	100.8	100.9
GOTOT	INDEX	100.0	99.9	99.5	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.2	101.1	100.5	100.1	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.5	18.0	19.4	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	85.5	92.7	94.3	97.4	99.3	100.0
TX/T	PERCENT	NA	14.4	7.3	5.7	2.6	.7	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP18

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: HIGHER TAX ON EXCESS PROFITS ($\bar{\tau}_0$=.6)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	112.6	112.1	112.2	112.5	112.7	112.8
HO(2)	INDEX	100.0	99.8	99.4	99.5	99.7	99.9	100.0
GO(1)	INDEX	100.0	108.1	107.8	107.9	108.1	108.2	108.2
GO(2)	INDEX	100.0	99.9	99.5	99.6	99.8	99.9	100.0
HOTOT	INDEX	100.0	100.0	100.2	100.4	100.6	100.8	100.9
GOTOT	INDEX	100.0	99.9	99.5	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.0	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.2	101.1	100.5	100.1	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	78.5	89.0	91.5	96.1	99.0	100.0
TX/T	PERCENT	NA	21.5	11.0	8.5	3.9	1.0	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP19

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: LOWER TAX ON EXCESS PROFITS ($\bar{\tau}_0$=.2)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	112.6	112.1	112.2	112.5	112.7	112.8
HD(2)	INDEX	100.0	99.8	99.4	99.5	99.7	99.9	100.0
GD(1)	INDEX	100.0	108.1	107.8	107.9	108.1	108.2	108.2
GD(2)	INDEX	100.0	99.9	99.5	99.6	99.8	99.9	100.0
HDTOT	INDEX	100.0	100.3	100.2	100.4	100.6	100.8	100.9
GDTOT	INDEX	100.0	99.9	99.5	99.4	99.4	99.5	99.5
HS	INDEX	100.0	100.3	100.1	100.3	100.6	100.8	100.9
PHS	INDEX	100.0	100.3	101.2	101.1	100.5	100.1	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	47.5	47.7	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.5	37.4	37.3	37.3	37.2
C/YTOT	PERCENT	0.0	.1	.9	1.1	1.2	1.2	1.2
TS/T	PERCENT	NA	92.8	96.3	97.2	98.7	99.7	100.0
TX/T	PERCENT	NA	7.2	3.7	2.8	1.3	.3	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP20

SHELTER ALLOWANCE FORMULA: S = .2143R(1)

SPECIAL FEATURES: SMALLER POPULATION ELIGIBLE FOR ALLOWANCE (λ_2=.2,λ_4=.05)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	112.7	112.3	112.4	112.6	112.8	112.8
HO(2)	INDEX	100.0	99.9	99.5	99.6	99.8	99.9	100.0
GO(1)	INDEX	100.0	108.1	108.0	108.0	108.1	108.2	108.2
GO(2)	INDEX	100.0	99.9	99.7	99.7	99.9	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.1	100.3	100.5	100.6	100.6
GOTOT	INDEX	100.0	99.9	99.5	99.6	99.6	99.6	99.7
HS	INDEX	100.0	100.0	100.1	100.2	100.4	100.6	100.6
PHS	INDEX	100.0	100.2	100.3	100.8	100.4	100.1	100.0
RHO	PERCENT	3.0	3.0	3.0	2.9	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.5	10.3	13.5	14.5	14.5	14.5
R(1)/YB(1)	PERCENT	42.0	47.4	47.6	47.6	47.5	47.4	47.4
R(2)/YB(2)	PERCENT	42.0	42.1	42.2	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	10.2	10.2	10.2	10.2	10.2	10.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.3	37.4	37.4	37.3	37.2	37.2
C/YTOT	PERCENT	0.0	.1	.6	.8	.8	.8	.8
TS/T	PERCENT	NA	87.3	93.7	95.1	97.7	99.4	100.0
TX/T	PERCENT	NA	12.7	6.3	4.9	2.3	.6	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP21

SHELTER ALLOWANCE FORMULA: S = .1714R(1)

SPECIAL FEATURES: FORMULA PARAMETER a REDUCED (a=.1714)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	109.7	109.4	109.4	109.6	109.8	109.9
HD(2)	INDEX	100.0	99.9	99.5	99.6	99.8	99.9	100.0
GD(1)	INDEX	100.0	106.4	106.2	106.2	106.4	106.5	106.5
GD(2)	INDEX	100.0	99.9	99.7	99.7	99.9	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.1	100.3	100.5	100.6	100.6
GDTOT	INDEX	100.0	99.9	99.5	99.5	99.6	99.6	99.6
HS	INDEX	100.0	100.0	100.1	100.2	100.4	100.6	100.6
PHS	INDEX	100.0	100.3	100.9	100.8	100.4	100.1	100.0
RHO	PERCENT	3.0	3.0	3.0	2.9	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	46.2	46.3	46.3	46.2	46.2	46.1
R(2)/YB(2)	PERCENT	42.0	42.1	42.2	42.2	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	7.9	7.9	7.9	7.9	7.9	7.9
(R(1)-S)/YB(1)	PERCENT	42.0	38.3	38.4	38.4	38.3	38.3	38.2
C/YTOT	PERCENT	0.0	.1	.7	.9	.9	.9	.9
TS/T	PERCENT	NA	85.8	92.9	94.5	97.5	99.3	100.0
TX/T	PERCENT	NA	14.2	7.1	5.5	2.5	.7	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: RP22

SHELTER ALLOWANCE FORMULA: S = .2571R(1)

SPECIAL FEATURES: FORMULA PARAMETER a INCREASED (a=.2571)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	115.8	115.1	115.2	115.6	115.9	116.0
HD(2)	INDEX	100.0	99.8	99.2	99.3	99.7	99.9	100.0
GD(1)	INDEX	100.0	109.9	109.5	109.6	109.8	109.9	110.0
GD(2)	INDEX	100.0	99.8	99.5	99.5	99.8	99.9	100.0
HDTOT	INDEX	100.0	100.0	100.2	100.4	100.8	101.0	101.1
GDTOT	INDEX	100.0	99.8	99.3	99.2	99.3	99.4	99.4
HS	INDEX	100.0	100.0	100.1	100.3	100.7	101.0	101.1
PHS	INDEX	100.0	100.4	101.5	101.4	100.7	100.2	100.0
RHO	PERCENT	3.0	3.0	2.9	2.9	2.9	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	48.8	49.1	49.1	48.9	48.8	48.7
R(2)/YB(2)	PERCENT	42.0	42.1	42.3	42.3	42.1	42.0	42.0
S/YB(1)	PERCENT	0.0	12.5	12.5	12.5	12.6	12.5	12.5
(R(1)-S)/YB(1)	PERCENT	42.0	36.3	36.5	36.5	36.3	36.2	36.2
C/YTOT	PERCENT	0.0	.1	1.1	1.4	1.5	1.5	1.5
TS/T	PERCENT	NA	85.4	92.4	94.2	97.3	99.3	100.0
TX/T	PERCENT	NA	14.5	7.5	5.8	2.7	.7	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT1

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: STANDARD CASH TRANSFER FORMULA EXPERIMENT

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.6	106.5	106.6	106.6	106.7	106.7
HO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GO(1)	INDEX	100.0	110.6	110.6	110.6	110.7	110.7	110.7
GO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.5	99.1	99.6	99.9	100.0
TX/T	PERCENT	NA	8.4	1.4	.9	.4	.1	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT2

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: HIGHER INCOME ELASTICITY OF HOUSING DEMAND (α_1=1.0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	108.9	109.0	109.0	109.0	109.0	109.0
HD(2)	INDEX	100.0	99.9	100.0	100.0	100.0	100.0	100.0
GD(1)	INDEX	100.0	108.9	109.0	109.0	109.0	109.0	109.0
GD(2)	INDEX	100.0	99.9	100.0	100.0	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GDTOT	INDEX	100.0	99.9	100.0	100.0	100.0	100.0	100.0
HS	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHS	INDEX	100.0	100.2	100.0	100.0	100.0	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	45.8	45.8	45.8	45.8	45.8	45.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	36.8	36.8	36.8	36.8	36.8	36.8
C/YTOT	PERCENT	0.0	.1	.3	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	89.2	99.3	100.1	100.1	100.0	100.0
TX/T	PERCENT	NA	10.9	.2	-.1	-.1	-.0	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT3

SHELTER ALLOWANCE FORMULA: $S = .09$

SPECIAL FEATURES: LOWER INCOME ELASTICITY OF HOUSING DEMAND ($\alpha_1 = .5$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	104.3	104.3	104.3	104.3	104.4	104.4
HD(2)	INDEX	100.0	99.9	99.9	99.9	99.9	100.0	100.0
GD(1)	INDEX	100.0	112.3	112.2	112.2	112.3	112.3	112.3
GD(2)	INDEX	100.0	100.0	99.9	99.9	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.2	100.2
GDTOT	INDEX	100.0	100.0	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.1	100.1	100.2	100.2
PHS	INDEX	100.0	100.1	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	43.9	43.9	43.9	43.9	43.9	43.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.1	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	34.9	34.9	34.9	34.9	34.9	34.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	94.1	98.4	98.8	99.4	99.8	100.0
TX/T	PERCENT	NA	5.9	1.5	1.2	.6	.2	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT4

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: HIGHER PRICE ELASTICITY OF HOUSING DEMAND (α_2=-.75)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.5	106.5	106.6	106.6	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	99.9	100.0	100.0
GD(1)	INDEX	100.0	110.7	110.7	110.7	110.7	110.7	110.7
GD(2)	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
GDTOT	INDEX	100.0	100.0	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.1	100.1	100.1	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	94.4	99.0	99.3	99.6	99.8	100.0
TX/T	PERCENT	NA	5.6	1.0	.7	.4	.2	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT5

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: LOWER PRICE ELASTICITY OF HOUSING DEMAND (α_2=-.25)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.5	106.5	106.6	106.7	106.7	106.7
HO(2)	INDEX	100.0	99.9	99.9	100.0	100.0	100.0	100.0
GO(1)	INDEX	100.0	110.5	110.5	110.6	110.7	110.7	110.7
GO(2)	INDEX	100.0	99.8	99.8	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.1	100.1	100.1	100.1	100.1
GOTOT	INDEX	100.0	99.9	99.8	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.1	100.1	100.1	100.1	100.1
PHS	INDEX	100.0	100.4	100.3	100.2	100.0	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.9	44.9	44.9	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.1	42.1	42.1	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.9	35.9	35.9	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.3	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	83.1	97.9	99.0	99.8	100.0	100.0
TX/T	PERCENT	NA	16.9	2.1	1.0	.2	.0	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT6

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: HIGHER SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.015)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.5	106.5	106.6	106.7	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	110.6	110.5	110.6	110.7	110.7	110.7
GD(2)	INDEX	100.0	99.9	99.9	100.0	100.0	100.0	100.0
HDTDT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GDTDT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.1	100.0	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTDT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.3	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.8	99.3	99.8	100.0	100.0
TX/T	PERCENT	NA	8.4	1.2	.7	.2	.0	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT7

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: LOWER SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.005)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.6	106.5	106.6	106.6	106.6	106.7
HO(2)	INDEX	100.0	99.9	99.9	99.9	99.9	100.0	100.0
GO(1)	INDEX	100.0	110.6	110.6	110.6	110.6	110.7	110.7
GO(2)	INDEX	100.0	99.9	99.9	99.9	99.9	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.1	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.9	44.9	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.9	35.9	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.4	98.8	99.2	99.6	100.0
TX/T	PERCENT	NA	8.4	1.5	1.2	.8	.4	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT8

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: VERY LOW SHORT-RUN ELASTICITY OF HOUSING SUPPLY (β=.001)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.5	106.5	106.5	106.6	106.6	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	100.0
GD(1)	INDEX	100.0	110.6	110.6	110.6	110.6	110.6	110.7
GD(2)	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.1
GDTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.1
PHS	INDEX	100.0	100.2	100.3	100.3	100.2	100.2	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.9	44.9	44.9	44.9	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.1	42.1	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.9	35.9	35.9	35.9	35.8
C/YTOT	PERCENT	0.0	.1	.3	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.3	98.6	98.7	98.9	100.0
TX/T	PERCENT	NA	8.4	1.7	1.4	1.3	1.1	0.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT9

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: HOUSING SUPPLY PERFECTLY INELASTIC (β=0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.5	106.5	106.5	106.5	106.5	106.5
HO(2)	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
GO(1)	INDEX	100.0	110.5	110.5	110.6	110.6	110.6	110.6
GO(2)	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HOTOT	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHS	INDEX	100.0	100.2	100.3	100.3	100.3	100.3	100.3
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.9	44.9	44.9	44.9	44.9
R(2)/YB(2)	PERCENT	42.0	42.0	42.1	42.1	42.1	42.1	42.1
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.9	35.9	35.9	35.9	35.9
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.2	98.5	98.6	98.6	98.6
TX/T	PERCENT	NA	8.4	1.8	1.5	1.4	1.4	1.4

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT10

SHELTER ALLOWANCE FORMULA: $S = .09$

SPECIAL FEATURES: HIGHER LONG-RUN VACANCY RATE ($\bar{\rho}=.05$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.5	106.5	106.6	106.6	106.7	106.7
HO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GO(1)	INDEX	100.0	110.5	110.5	110.6	110.7	110.7	110.7
GO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.1	100.1	100.0	100.0
RHO	PERCENT	5.0	5.0	5.0	5.0	5.0	5.0	5.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.6	98.7	99.1	99.6	99.9	100.0
TX/T	PERCENT	NA	8.4	1.3	.9	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT11

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: LOWER LONG-RUN VACANCY RATE ($\bar{\rho}$=.01)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.6	106.6	106.6	106.6	106.7	106.7
HO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GO(1)	INDEX	100.0	110.6	110.6	110.6	110.7	110.7	110.7
GO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	1.0	1.0	1.0	1.0	1.0	1.0	1.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.9	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.9	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.6	98.5	99.0	99.5	99.9	100.0
TX/T	PERCENT	NA	8.4	1.5	1.0	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT12

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: GREATER PRICE SENSITIVITY OF VACANCY RATE (δ_1=-6)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.6	106.5	106.6	106.6	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	110.6	110.6	110.6	110.7	110.7	110.7
GD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.1	100.1	100.1	100.1	100.1
GDTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.1	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.3	44.3	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.7	99.1	99.6	99.9	100.0
TX/T	PERCENT	NA	8.4	1.3	.9	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT13

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: VACANCY RATE INSENSITIVE TO PRICE (δ_1=0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.5	106.5	106.6	106.6	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	110.6	110.6	110.6	110.7	110.7	110.7
GD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GDTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.9	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.9	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.6	98.5	99.0	99.6	99.9	100.0
TX/T	PERCENT	NA	8.4	1.5	1.0	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT14

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: FASTER ADJUSTMENT OF VACANCY AND PARTICIPATION RATES ($\gamma=\xi=\phi=.15$)

		INITIAL STATE	STATE AFTER PROGRAM INTRUDUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.5	106.5	106.6	106.6	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	110.6	110.6	110.6	110.7	110.7	110.7
GD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.1	100.1	100.1	100.1	100.1
GDTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
PHS	INDEX	100.0	100.3	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	2.9	17.0	19.0	19.4	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.9	44.9	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.1	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.9	35.9	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.2	.9	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.3	99.2	99.6	99.9	100.0
TX/T	PERCENT	NA	8.5	1.2	.8	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT15

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: SLOWER ADJUSTMENT OF VACANCY AND PARTICIPATION RATES ($\gamma=\xi=\phi=.05$)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.6	106.6	106.6	106.6	106.7	106.7
HO(2)	INDEX	100.0	100.0	99.9	99.9	100.0	100.0	100.0
GO(1)	INDEX	100.0	110.6	110.6	110.6	110.6	110.7	110.7
GO(2)	INDEX	100.0	100.0	99.9	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
GOTOT	INDEX	100.0	100.0	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.1	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.0	9.4	14.0	18.5	19.3	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.3	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.5	.8	1.0	1.0	1.0
TS/T	PERCENT	NA	91.6	98.4	98.9	99.5	99.9	100.0
TX/T	PERCENT	NA	8.4	1.5	1.1	.5	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT16

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: HOME-OWNER PARTICIPATION SENSITIVE TO BENEFIT LEVEL (ϵ_1=.5)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.6	106.5	106.6	106.6	106.7	106.7
HO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GO(1)	INDEX	100.0	110.5	110.6	110.6	110.7	110.7	110.7
GO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.3	44.3	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.5	98.5	99.1	99.6	99.9	100.0
TX/T	PERCENT	NA	8.4	1.4	.9	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT17

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: HOME-OWNER PARTICIPATION VERY SENSITIVE TO BENEFIT LEVEL (ϵ_1=1.0)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	106.5	106.5	106.6	106.6	106.7	106.7
HO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GO(1)	INDEX	100.0	110.5	110.5	110.6	110.7	110.7	110.7
GO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	91.6	98.5	99.1	99.6	99.9	100.0
TX/T	PERCENT	NA	8.4	1.4	.9	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT18

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: HIGHER TAX ON EXCESS PROFITS ($\bar{\tau}_0$=.6)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.6	106.6	106.6	106.6	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	110.5	110.5	110.6	110.7	110.7	110.7
GD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HDTDT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GDTDT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTDT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTDT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	87.3	97.9	98.6	99.4	99.8	100.0
TX/T	PERCENT	NA	12.7	2.1	1.4	.6	.2	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT19

SHELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: LOWER TAX ON EXCESS PROFITS ($\bar{\tau}_0$=.2)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.6	106.6	106.6	106.6	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	110.6	110.6	110.6	110.7	110.7	110.7
GD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GDTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.8	1.0	1.0	1.0	1.0
TS/T	PERCENT	NA	95.8	99.3	99.5	99.8	99.9	100.0
TX/T	PERCENT	NA	4.2	.7	.5	.2	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT20

SMELTER ALLOWANCE FORMULA: S = .09

SPECIAL FEATURES: SMALLER POPULATION ELIGIBLE FOR ALLOWANCE (λ_2=.2,λ_4=.05)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION					
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	106.5	106.5	106.6	106.6	106.7	106.7
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	110.5	110.5	110.6	110.7	110.7	110.7
GD(2)	INDEX	100.0	100.0	99.9	100.0	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
GDTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.1	100.1	100.1	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.5	10.3	13.5	14.5	14.5	14.5
R(1)/YB(1)	PERCENT	42.0	44.8	44.8	44.8	44.8	44.8	44.8
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	9.0	9.0	9.0	9.0	9.0	9.0
(R(1)-S)/YB(1)	PERCENT	42.0	35.8	35.8	35.8	35.8	35.8	35.8
C/YTOT	PERCENT	0.0	.1	.5	.7	.7	.7	.7
TS/T	PERCENT	NA	92.5	98.8	99.2	99.6	99.9	100.0
TK/T	PERCENT	NA	7.5	1.2	.8	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT21

SHELTER ALLOWANCE FORMULA: S = .072

SPECIAL FEATURES: FORMULA PARAMETER K REDUCED (K=.072)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HD(1)	INDEX	100.0	105.3	105.3	105.3	105.3	105.3	105.4
HD(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GD(1)	INDEX	100.0	108.5	108.5	108.5	108.5	108.5	108.5
GD(2)	INDEX	100.0	99.9	99.9	100.0	100.0	100.0	100.0
HDTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.1
GDTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.0	100.1	100.1	100.1
PHS	INDEX	100.0	100.1	100.2	100.1	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	44.3	44.3	44.3	44.3	44.3	44.2
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	7.2	7.2	7.2	7.2	7.2	7.2
(R(1)-S)/YB(1)	PERCENT	42.0	37.1	37.1	37.1	37.1	37.1	37.0
C/YTOT	PERCENT	0.0	.1	.5	.8	.8	.8	.8
TS/T	PERCENT	NA	91.5	98.5	99.1	99.6	99.9	100.0
TX/T	PERCENT	NA	8.5	1.4	.9	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.

EXPERIMENT: CT22

SHELTER ALLOWANCE FORMULA: S = .108

SPECIAL FEATURES: FORMULA PARAMETER K INCREASED (K=.108)

		INITIAL STATE	STATE AFTER PROGRAM INTRODUCTION				
			FIRST MONTH	AFTER 1 YR.	AFTER 2 YRS.	AFTER 5 YRS.	AFTER 10 YRS.	FINAL STATE
HO(1)	INDEX	100.0	107.9	107.9	107.9	107.9	108.0	108.0
HO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
GO(1)	INDEX	100.0	112.7	112.7	112.8	112.8	112.8	112.8
GO(2)	INDEX	100.0	99.9	99.9	99.9	100.0	100.0	100.0
HOTOT	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.2
GOTOT	INDEX	100.0	99.9	99.9	99.9	99.9	99.9	99.9
HS	INDEX	100.0	100.0	100.0	100.1	100.1	100.1	100.2
PHS	INDEX	100.0	100.2	100.2	100.2	100.1	100.0	100.0
RHO	PERCENT	3.0	3.0	3.0	3.0	3.0	3.0	3.0
N(1)/NBTOT	PERCENT	0.0	1.9	14.4	18.0	19.3	19.4	19.4
R(1)/YB(1)	PERCENT	42.0	45.4	45.4	45.4	45.4	45.4	45.4
R(2)/YB(2)	PERCENT	42.0	42.0	42.0	42.0	42.0	42.0	42.0
S/YB(1)	PERCENT	0.0	10.8	10.8	10.8	10.8	10.8	10.8
(R(1)-S)/YB(1)	PERCENT	42.0	34.6	34.6	34.6	34.6	34.6	34.6
C/YTOT	PERCENT	0.0	.1	.9	1.2	1.3	1.3	1.3
TS/T	PERCENT	NA	91.6	98.6	99.1	99.6	99.9	100.0
TX/T	PERCENT	NA	8.4	1.4	.9	.4	.1	.0

NOTE: NA DENOTES NOT APPLICABLE.